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COURSE AND PROGNOSIS OF ESSENTIAL HYPERTENSION

FOLLOW-UP OF 453 PATIENTS TEN YEARS AFTER ORIGINAL SERIES WAS CLOSED

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and
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This paper summarizes the present status of a series of patients in whom essential hypertension was diagnosed from 10 to 12 or more years ago; no new patients have been added in the last 10 years. Two previous reports have been made on this series; one four years ago[1] and one six years ago.[2] Classification was originally made according to criteria previously outlined.[2] In brief, grade 1 included persons with minimal organic change, or none, as recognized by ordinary clinical examination in the three vital areas, head, heart, or kidneys; grade 2, those with definite or marked change, but no functional impairment; grade 3, those with organic change with functional impairment; and grade 4, those with papilledema. Classification was made according to maximum change found in any one or more areas without regard to elevation of blood pressure. A few patients were seen as long as 20 years ago; the majority, however, came under observation between 1935 and 1940. Ten years is the shortest observation period except for those who died. Over a thousand patients were originally seen, but over 40% were excluded because they were seen only once or were observed too briefly, because classification was doubtful, because the diagnosis was glomerulonephritis or transient nervous hypertension, or, finally, because sympathectomy was performed. Six hundred forty-six persons were included in the original classifications.

Treatment was chiefly dietary (fat-excluded, low calory, or salt poor, or both; occasionally strict low sodium) together with mild sedation and sometimes potassium sulfocyanate. More recently, a few patients were maintained on the rice diet and some were given veratrum preparations. In general, treatment was according to conventional indications, the ordinary rules of good hygiene, and simple psychotherapy varied and adapted to the particular patient.[3] These patients are considered valid controls for comparison with the results of surgical treatment or with those of any single medical treatment consistently followed.

Figure 1[1] shows the percentage of survivors at each check period. The dotted line indicates a rough graphical prediction, made after 8 years of treatment, of the per cent of survival expected at the end of 10 to 12 years. Observed survival was better than expected in each of the grades: grade 1, 58% expected, 64% observed; grade 2, 24% expected, 42% observed; grade 3, 2% expected, 11% observed; and grade 4, none expected, 4% observed. This indicates that there has been a general tendency for mortalities to decrease in later years.

It is obvious that there are definite differences in the observed mortalities of different grades and that there is considerable validity in the criteria on which the distinctions of grading rest. The duration of disease in living patients is much the same for all groups; it is determined chiefly by the fact that the patients have survived at least 10 years since the series was closed. The average duration in patients who died, measured from original inclusion in the study, varies greatly between grades, as does the proportion of original patients followed to the present: grade 1, 5.9 years' duration, 53% followed; grade 2, 4.4 years' duration, 62% followed; grade 3, 3.3 years' duration, 85% followed; and grade 4, one year duration, 95% followed. It is evident that success in follow-up increases with shorter average survival of dead patients. This is to be expected, since the combination of high mortality and early death allows less chance for loss from observation.

Death certificates of deceased patients and reports from attending physicians and from members of the family included, predominantly, factors associated with

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The authors were assisted by Gertrude S. Roberts.

From the Massachusetts General Hospital Hypertension Clinic and the Harvard School of Public Health. This study was aided by the Dorothea Loofbourow Memorial Fund.

[1] Palmer, R. S.; Loofbourow, D., and Doering, C. R.: Prognosis in Essential Hypertension: Eight-Year Follow-Up Study of 430 Patients on Conventional Medical Treatment, New England J. Med. **239**: 990-994 (Dec. 23) 1948.

[2] Rogers, W. F., and Palmer, R. S.: Essential Hypertension: Prognosis and Comparison of Medical and Surgical Treatments, Am. Pract. **1**: 459-465 (May) 1947.

[3] Palmer, R. S.: Psyche and Blood Pressure: 100 Mental Stress Tests and 50 Personality Surveys in Patients with Essential Hypertension, J. A. M. A. **144**: 295-298 (Sept. 23) 1950.

hypertension as cause of death. This is not surprising, since the existence of hypertension was generally known to the person furnishing the information. The proportion of causes assigned to major groups under each grade are listed in table 1.

The original follow-up study made on our group of patients is inherently a life table study, and the curves in figure 1 are essentially curves of survival of four subgroups of patients starting with 100% of each subgroup admitted to the study in the beginning. The curves have considerable validity as they stand, in view of the fact that few or no patients were admitted to each subgroup after the first few years and none at all were added during the last 10. The study is not, therefore, greatly biased by having an excess of observations in the early years of experience. On the other hand, subgroups are not homogeneous as to age and sex or as to periods of observation, factors that may affect the results of the analysis. An additional study of the data has, therefore, been made on a life table basis in order to remove possible bias and to discover additional differences that might exist.

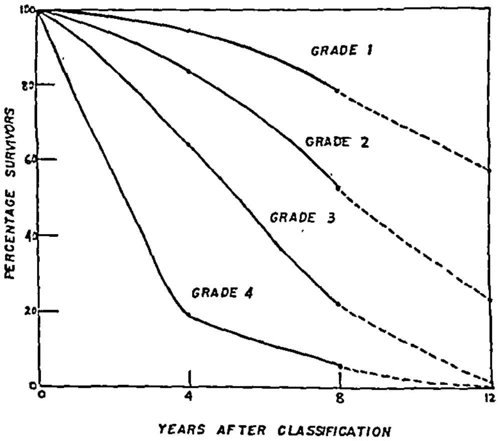

Fig. 1.—Percentage of survivors of each grade observed 4 and 8 years after classification (solid line) and estimated expected percentage of survivors at 12 years (broken line).

All studies of this kind suffer from the serious fault of incomplete follow-up. It must be assumed that the portion of the group lost from observation might be heavily weighted with patients who died, in which case the true mortality figures would be greater than those obtained from the remainder. On the other hand, if the lost group consisted mainly of patients who improved and, therefore, drifted away from treatment, the error would be in the opposite direction. Which error, if either, has occurred in this study is unknown. We feel that the exceptionally careful follow-up that preceded this study was more likely to turn up previously undiscovered death records than living patients who had disappeared. The fact that follow-up is more nearly complete in groups with highest mortalities lends additional strength to the assumption that actual mortalities are, if anything, somewhat less than those obtained from the data.

The first analysis was a study of person years (table 2).[4] It is based on the fact that there will be some deaths in any general population group followed over a period of time. The criterion of risk of a special group is then the ratio of its observed deaths, year by year, to the number of deaths that would have been expected in a group of the normal population made up in exactly the same way as to age, sex, and race. Expected deaths are easily calculated from life tables, and for this purpose we used the "United States 1939 to 1941" tables [5] for white men and women, respectively. The ratios obtained are abstracted in table 2.

TABLE 1.—*Causes of Death Listed for Patients with Hypertension*

	Cerebral, %	Heart, %	Kidney, %	Total, %	Unknown, %
Grade 1	40	35	2.5	77.5	5
Grade 2	33	33	10	76	15
Grade 3	34	46	11	91	3
Grade 4	23	29	40	92	4

Certain general conclusions may be drawn from these data. (*a*) Relative risk is highest in younger persons and decreases rapidly with age. Older women with milder grades seem certainly to be no worse off, as regards mortality, than the general population. (*b*) Women have definitely lower mortalities than do men, except for those in grade 4. Women in the first three grades tend to be somewhat older than men. The proportion of women decreases markedly from grade 1 to grade 4. It may be said that women appear to have a milder type of hypertension than men do and a slower rate of progression that leads to a higher mean age for women in each of the first three grades, especially when duration is taken into account. (*c*) Average age increases from grade 1 to grade 3 and indicates that, to some extent, each grade is a successive stage of the preceding one. There is, on the other hand, considerable evidence of a tendency for persons to remain in the grade in which classification was originally made. This would imply that there is considerable variation in the original characteristics of hypertension and that different degrees of severity tend to exist from the beginning. Certainly at least some of the 36% of grade 1 patients who died, as well as some of the 58%

TABLE 2.—*Ratio of Observed to Expected Deaths By Person Years*

	Grade 1		Grade 2		Grade 3		Grade 4	
Age, Yr.	Men	Women	Men	Women	Men	Women	Men	Women
0-34	15.4	11.6	...	68.8	183.1	101.6	331.8	298.4
35-54	4.3	4.9	3.8	9.6	32.1	34.7	84.4	119.3
55-74	2.9	0.7	3.9	2.6	6.2	4.9	80.6	28.9
75 and over	7.2	0.5	...	0.8	2.5	1.4	.....	.....
Total	3.8	1.3	3.9	2.7	9.4	5.6	100.1	139.3
Persons	40	70	29	59	99	102	32	22
Person years	349	680	190	472	349	515	36	37
Mean age *	44.2	47.0	53.5	52.6	52.6	55.0	39.2	38.5

* Based on age at entry to series.

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[4] Complete tables and original data in mimeographed form may be obtained from the authors.

[5] United States Department of Commerce, Bureau of the Census: Sixteenth Census of the United States: 1940, United States Life Tables and Actuarial Tables, 1939-1941, by Thomas N. E. Greville, prepared under the supervision of Halbert L. Dunn, Washington, D. C., United States Government Printing Office, 1946.

of grade 2 must have advanced to severer types. Relative excesses of mortality decrease greatly, however, with advancing years, and the progression to severer types must be slow at higher ages. (*d*) Grade 4 presents a picture all its own. The patients tend to be affected earlier in life, and their hypertension tends to run a highly acute and lethal course.

TABLE 3.—*Death Rate Per 1,000 Person Years by Age and Duration of Disease*

Grade	1		2		3		4	
Duration, years	−5	5+	−5	5+	−5	5+	−1	1+
Age								
0-34	38	..	235	..	667	182	1000	429
35-54	23	44	59	57	289	279	584	791
55-74	53	31	111	76	167	174	1000	1333
75 and over	85	110	167	32	183	170	....	...
Total	39	39	93	65	216	199	730	701
Person years	567	461	280	382	436	426	34	38
Deaths observed	22	18	26	25	91	85	25	27

The age categories of table 2 reflect increased duration as well as advancing age. The decreasing relative mortalities could, therefore, be connected with either age or duration, or both. In order to determine the important factor, a second tabulation was made and is abstracted in table 3.[4] In this table, sexes have been combined, but figures by age are split into two groups on the basis of duration of disease at time of entry into the study. In order to obtain groups of roughly similar size, the division was made at five years' duration for the first three grades and at one year for the fourth. It is somewhat surprising to find no consistent differences associated with duration of disease, with the single exception of the youngest patients in grade 4. In those, duration of less than a year is definitely associated with higher mortality.

It is true that duration rests on patients' statements and is, therefore, not clearly defined. There must be definite differences, however, in average duration between each two comparison groups; it is surprising not to find them connected with differences in observed mortality. It can only be concluded that mortality in hypertension varies greatly with age, but little with previous duration of disease at a given age.

TABLE 4.—*Ratio of Observed Survivors to Those Expected from Life Table (l_x)*

Years of Classification	Grade 1	Grade 2	Grade 3	Grade 4
0.5	0.998	0.962	0.885	0.502
2.5	0.960	0.889	0.549	0.094
4.5	0.941	0.704	0.393	0.076
6.5	0.896	0.661	0.336	0.054
8.5	0.831	0.592	0.266	0.055
10.5	0.798	0.589	0.180	0.037
12.5	0.815	0.566	0.162	

We tried another type of analysis, suggested by Berkson and Gage,[6] on these data. It is based on the proportion of each group originally classified by grade surviving year by year after inclusion in the study, and the result is, therefore, similar to the direct survival curves in figure 1. Survival is influenced, however, not only by the disease in question but by other forces of mortality connected with age and sex. Grade 3 patients, for example, would be expected to die at a faster rate than those in grade 1; differences in hypertension were disregarded merely because the groups were more heavily weighted with older men. In order to equalize such differences, observed survival is compared with the proportion surviving in groups made up of persons of the same age and sex drawn from the general population. United States life tables were used as the source of comparison groups.

The results of the analysis are abstracted in table 4[4] and are graphed in figure 2. The curves are similar to those in figure 1, but they now refer, not to actual survivors, but to the ratio of survivors observed to those expected to survive in the general population. A horizontal line, therefore, does not mean absence of deaths but mortality at rates expected in a normal population. It can be seen that, in each group, patients die faster than expected and that this difference rapidly increases with grade. On the other hand, in each grade, the relative decrease slows markedly with the passage of years after inclusion in the study. Since the effects of increasing age and duration of hypertension are combined in this table it is impossible to determine the relative influence of each, but the previous analysis indicates that age is the more important factor. The simple shape and apparent homogeneity of the relative survival curves naturally lead to attempts to explain them on a basis of simple mathematical rationalization.

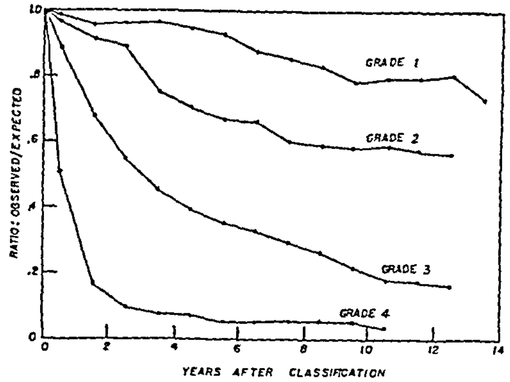

Fig. 2.—Ratio of observed survivals in each grade to expected (l_x) by annual intervals beginning six months after classification.

There are at least three hypotheses that may be applied to the analysis of the survival ratio curves. (*a*) There is a continous rate of decrease of survivors below expected. This seems to be the case in grade 1, in which some 20 per 1,000 survivors are lost each year, in addition to deaths normally expected. This would be a relatively large increase in young ages, but relatively a much smaller number as age advances. (*b*) There is a "cured" component that follows expected mortality rates, plus a remainder dying at a continuous, increased ratio. Berkson and Gage found that this described their data on postoperative cancer survival very well. Here grade 4 seems well described by this assumption; it is, however,

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6. Berkson, J., and Gage, R. P.: Survival Curves for Cancer P-t' Following Treatment, J. Am. Statistical A. 47: 501-515 (Sept.) 1952.

much the smallest group, and no definite conclusions can be drawn. (*c*) Excess mortality itself follows a curve that starts high but continually decreases. A priori, this would seem to be the most logical assumption for a disease of this type. It actually furnishes the best description of the curve for grade 3, while either this one or the previous assumption (*b*) equally well describes observations on patients in grade 2.

There is little profit in arguing differences in assumptions or in their results as based on a limited series of cases. However, the statistical note that follows gives constants of the respective curves for each grade. The resulting curves under different assumptions are closely similar and can be used for the purpose of predicting survival in each grade for groups of patients under conservative treatment.

STATISTICAL NOTE

(*a*) Assumption of constant loss: $dy/dt = -by$ so $y = e^{-bt}$

Grade 1: $b = 0.0206$

(*b*) Assumption of normal group plus constant loss in remainder:

$$dy/dt = -b(y - a) \text{ so } y = a + (1 - a)e^{-bt}$$

	a	b
Grade 2	0.475	0.161
Grade 4	0.056	1.551

(*c*) Assumption of constantly decreasing rate of loss:

$$dy/dt = -ay/(b + t) \text{ so } y = [b/(b + t)]^{a}$$

	a	b
Grade 2	0.505	5.213
Grade 3	1.328	4.553

COMMENT

A number of questions are raised by this study. Are the good results in certain types of treatment determined largely by the selection of patients from grades of disease in which the prognosis is good in any case? Is the disease in persons with the best prognosis (such as those in grade 1) primarily neurogenic or functional, and does it tend to remain in the same grade without developing organic lesions, while excess mortality is due to hypertension that is primarily organic and that moves on to more serious conditions? Are mortality rates in grades 3 and 4 so high that treatment, in itself hazardous and uncomfortable, may be justified in an effort to prolong life? Is on the other hand, the use of potentially dangerous hypotensive agents indicated in milder degrees of hypertension in which the natural survival time is so long? Definitive answers to such questions must come from carefully controlled studies of survival in adequate numbers of patients treated by various methods.

SUMMARY AND CONCLUSIONS

This is a report on the survival of 453 patients with different degrees of essential hypertension who were first seen and classified by one of us (R. S. P.) more than 10 years ago and who were recently subjected to intensive follow-up. The essential validity of separation of cases into four grades according to clinical criteria has been established by this analysis as well as by two previous ones. The patients included may be regarded as a reasonably unbiased sample of the 10 or 15 million Americans suffering from hypertension, and the results of the analysis may be accepted as a base line for the results of conservative medical treatment with which other treatment results may be compared. Because of the inevitable loss of patients from observation, it is felt that mortality rates as given here may be somewhat exaggerated.

Several tentative conclusions may be made. 1. Relative risk is highest in young ages and decreases rapidly with age. 2. Mortality in women is definitely lower (except for those in grade 4), and increase of severity is slower. At higher ages in the milder grades, the mortality of women compares favorably with that of the general population. 3. Average age increases from grade 1 to grade 3. Each higher grade must, to some extent, be a later development of the previous one. 4. Duration of disease, apart from advancing age, does not seem to have any effect on mortality, except in grade 4 in which short duration is associated with higher mortality at youngest ages. 5. Survival rates relative to those of the general population follow simple patterns that may be expressed in basic mathematical terms. In this way, a basic expectation of survival may be established for any grade of disease, furnishing a base for comparison with the results of other methods of treatment. 6. With each increase in grade, patients die at a faster rate than that expected. In general, this increase in mortality tends to diminish with time under observation or higher ages.

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Misdirective Counseling.—There are counseling visionaries and counseling realists. . . . One can correctly appraise a client's limitations as well as his abilities, interests, and aptitudes, can correctly interpret the job market, and yet participate with the client in making a crucial counseling mistake: the mistake of failing to take a penetrating view of the client's level of motivation. When a counselor looks back over his "great rehabilitations," he cannot but be impressed with the determination and will-to-succeed that distinguished each of them. Nor were these unusual or highly imaginative counseling cases of the 100-to-1-shot variety. Most probably they were ordinary programs involving the provision of some special training or special equipment, and leading toward an immediate and obtainable goal. What made these cases so startling was that after the first goal was reached the client went on and on under his own power. . . . But conversely, when the counselor looks back on so many of the other kinds of cases—the clients on whom was lavished so much of money, time, and attention, only to have them drop out or return to public assistance—then he is struck with the absence of a constructive motivation. Motivation is not to be confused with wish for status, or yearning. Motivation implies an overpowering will to do; it is action, not fantasy. Yet *all* too often the daydreams of the unable are treated by the more visionary of counselors as though these were mature interests, clamoring for release. . . . Not all individuals with I.Q. of 140 want to go to college; some of them are content to pump gas in a filling station and will expend no energy to go beyond that. It would be poor counseling to match the potential talent to the maximal job if the individual habitually operates on a lesser level. There is nothing terribly abnormal about squandering or wasting one's talent. . . . The wise counselor is not one who moralizes on what a client should do with his talents (and proceeds to build a plan around it); rather he seeks to determine what the client will do, and then assists him in a maximal adjustment thereto.—R. A. Peckham, Misdirective Counseling, *Journal of Rehabilitation,* May-June, 1953.

CLINICAL USE OF HYDRALAZINE AND HEXAMETHONIUM IN TREATMENT OF HYPERTENSION

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It is our purpose to report the use of hydralazine (Apresoline) hydrochloride and hexamethonium (Bistrium) in clinical practice. Evaluation of side-effects, safety, best method of administration, and clinical response are stressed. Excellent papers also discussing the use of these drugs have been published during the last year.[1]

It was proved that all patients included in our series had hypertension. All had average blood pressures of 150/100 mm. Hg or more prior to therapy except one. This 26-year-old patient had a progressively rising pressure following acute glomerulonephritis and had a pretreatment average blood pressure of 150/96 mm. Hg. The maximum pressure was 300/180 mm. Hg. The majority of patients were from the practice of two of us. The rest were from the practices of other physicians on the staff of Wesley Memorial Hospital. Patients' ages ranged from 17 to 71 years. A few of the patients were entirely free of symptoms. The majority had one or more of the usual symptoms of hypertensive cardiovascular disease. Some originally were completely incapacitated and bedfast.

A thorough investigation to determine the cause of hypertension was conducted in all patients. The following laboratory data were obtained: chest roentgenogram, intravenous pyelogram, electrocardiogram, basal metabolic rate, routine urinalysis and hematological examination, urine culture, urine concentration test, urea clearance test, phenylsulfonphthalein excretion, benzodioxane or regitine test, amobarbital sodium test, serum nonprotein nitrogen, serum creatinine, fasting blood sugar, and sedimentation rate. A presumed cause of hypertension was found in only five: two had a history of acute glomerulonephritis without definite proof of residual renal involvement; one had polycystic kidneys; one had persistent hypertension following a severe toxemia of pregnancy; and one had intercapillary glomerulosclerosis. In addition, four patients were in the terminal phase of malignant hypertension.

In evaluation of therapeutic results, blood pressure readings were taken as follows. Previously recorded pressures, in most cases extending over several years, were averaged and used as the pretreatment level. All patients were ambulatory and carried on their usual activities except those with malignant hypertension; these were hospitalized part of the time. Pressure readings during therapy were taken in the office. At each visit, three to five readings were taken, and the figure for that day was recorded as the average. Pressures reported as therapeutic results are averages of those recorded on the last three consecutive visits. All pressures during therapy were taken by the same observer.

Diets included from one gram of sodium to as much as desired. Restricted sodium diets were used to treat or prevent edema from cardiac decompensation.

THERAPY WITH HYDRALAZINE

Pharmacology.—It is not within the scope of this paper to discuss completely the pharmacology of hydralazine hydrochloride. Its actions are not yet completely known, but its major actions are reported to be sedation of the vasopressor center,[2] blocking a hypertensive hormone,[3] increasing renal blood flow,[4] increasing cardiac output,[4] pooling blood selectively in the splanchnic system,[4] and partially blocking adrenergic impulses.[2b]

Side-Effects.—Side-effects observed in 100 patients over a period of 17 months (the average was 8 months per patient) included headache in 39; nausea, 20; tachycardia, 16; flushed face, 12; nasal congestion, 11; pitting edema of ankles, 9; periorbital edema, 7; vomiting, 7; insomnia, 7; dizziness, 6; fever (associated with 22% eosinophilia in 1), 4; chills, 4; myalgia, 3; overstimulation, 3; tightness of face, 2; blurred vision, 2; watery eyes, 2; postural hypotension, 2; anginal attack, 1; burning in chest, 1; and drowsiness, 1. Of these 100 patients, 50 are reported in the evaluation of hydralazine therapy, 14 are reported in the evaluation of combined therapy, 12 were unable to tolerate the drug, and 24 were either lost to the series or observed for too short a time to be included in therapeutic results.

It was necessary to discontinue therapy in 12 patients because of severe toxic reactions, such as headache, nausea and vomiting, fever, pitting edema of the ankles,

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The hydralazine (Apresoline) was supplied by Ciba Pharmaceutical Products, Inc. and the hexamethonium (Bistrium) by E. R. Squibb and Sons.

Some of the patients treated were from the practices of Drs. Priest, Smith, Sittler, Raines, Ladd, Kilgore, Sippy, Isaacs, Abrahams, Wilson, Mallach, and Lestina of Chicago.

1. (*a*) Schroeder, H. A.: Effects of 1-Hydrazinophthalazine in Hypertension, Circulation **5**: 28 (Jan.) 1952. (*b*) Freis, E. D.; Finnerty, F. A.; Schnaper, H. W., and Johnson, R. L.: The Treatment of Hypertension with Hexamethonium, ibid. **5**: 20 (Jan.) 1952. (*c*) Schroeder, H. A.: Control of Hypertension by Hexamethonium and 1-Hydrazinophthalazine; Preliminary Observations, A. M. A. Arch. Int. Med. **89**: 523 (April) 1952. Taylor, R. D.; Dustan, H. P.; Corcoran, A. C., and Page, I. H.: Evaluation of 1-Hydrazinophthalazine ("Apresoline") in Treatment of Hypertensive Disease, ibid. **90**: 734 (Dec.) 1952. Grimson, K. S.; Orgain, E. S.; Rowe, C. R., Jr., and Sieber, H. A.: Caution with Regard to Use of Hexamethonium and "Apresoline," J. A. M. A. **149**: 215 (May 17) 1952. Riven, S. S., and others: The Control of Hypertension with 1-Hydrazinophthalazine (Apresoline), Am. J. Med. **14**: 160 (Feb.) 1953.

2. (*a*) Carver, B. W., and Yonkman, F. F.: Some Pharmacological Properties of 1-Hydrazinophthalazine, a Hypotensive Agent, Fed. Proc. **9**: 265 (March) 1950. (*b*) Gross, F.; Druey, J., and Meier, R.: A New Group of Depressor Substances with a Special Type of Effect, Experientia **6**: 19, 1950.

3. Taylor, R. D.; Page, I. H., and Corcoran, A. C.: A Hormonal Neurogenic Vasopressor Mechanism, A. M. A. Arch. Int. Med. **88**: 1 (July) 1951.

4. Wilkinson, E. L.; Backman, H., and Hecht, H. H.: Cardiovascular and Renal Adjustments to a Hypotensive Agent (1-Hydrazinophthalazine: Ciba BA-5968: Apresoline), J. Clin. Invest. **31**: 872 (Oct.) 1952.

and, in one case, an anginal attack. There was no effective treatment for any of these severe reactions. In the other patients experiencing reactions, the majority of symptoms disappeared spontaneously in about two weeks. Antihistaminic drugs, and in severe cases phenobarbital in addition, relieved headaches, nasal congestion, watery eyes, and periorbital edema.

The pitting edema of the ankles was generally accompanied by macular erythema covering the ankles only. It did not respond to a low salt diet, diuretics, or antihistaminic drugs. Side-effects were minimized when therapy was started with small doses and the doses were increased very gradually. Perhaps the incidence of side-effects in this series is higher than will be reported in the future because the importance of dosage was not appreciated early in the study. No evidence of chronic toxicity was observed.

Administration of Hydralazine.—This study was confined to oral administration. Initially, doses were given five times daily; later, doses were given four times daily. The latter proved equally effective and more convenient. Whether the drug was taken before or after meals made little difference. A satisfactory method of administration must do two things, minimize side-effects and lower pressure only gradually. The following system met these requirements. The first day a 25 mg. tablet was given with breakfast and the evening meal. Thereafter the total dose was increased 25 mg. a day. A schedule of doses was prepared for each patient (table 1).

TABLE 1.—*Dosage Schedule for Milligrams of Hydralazine*

	7:30 A. M.	Noon	5:30 P. M.	10:00 P. M.
Sunday	25*	..	25	..
Monday	25	..	25	25
Tuesday	25	25	25	25
Wednesday	25	25	25	50†
Thursday	25	50	25	50
Friday	50	50	25	50
Saturday	50	50	50	50

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* 25 mg. tablets are blue.
† 50 mg. tablets are red.

In a period of seven days the total daily dose was increased from 50 to 200 mg. If severe side-effects occurred, the dose was held stationary for a time and then increased more gradually. The dose was also held stationary whenever a satisfactory pressure drop was obtained. Therapy may also be started with 10 mg. doses and increased in a similar manner.

The range of daily doses that were effective in producing a significant fall in pressure (21 mm. Hg or more in systolic or diastolic pressure) were 100 mg. effective in three patients; 125 mg., two; 150 mg., one; 200 mg., four; 250 mg., eight; 300 and 375 mg., four patients each; 500 mg., seven; and 625 and 750 mg., one patient each. There was marked individual variation making careful gradation of the dose more imperative. The maximum dose given was 900 mg.; this was completely ineffective in three patients. It was felt that doses in excess of 900 mg. daily were not indicated. No subnormal pressures were observed regardless of the dose.

No case of true tolerance to hydralazine was noted. Often it was necessary to increase the dose from time to time, but no patient with an initial favorable response became refractory to treatment. Several patients voluntarily stopped therapy. When therapy was again started, they responded to smaller doses. In some cases, it was possible to reduce the dose and to maintain the same therapeutic results.

TABLE 2.—*Range of Fall in Pressure in Fifty Patients Given Hydralazine*

Fall in Pressure,* Mm. Hg		Number of Patients: Systolic		Number of Patients: Diastolic	
0-10		7		12	
11-20		10		16	
21-30		8		15	
31-40		12		7	
41-50		7		0	
51-60	Significant response	4	66%	0	44%
61-70		1		0	
71-80		0		0	
81-90		1		0	

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* Pressures all recorded in recumbent position; no postural drop noted during hydralazine therapy.

Results of Therapy with Hydralazine.—Fifty patients were treated for periods varying from 1 to 17 months; the average was 8 months. The results obtained in lowering blood pressure are summarized in table 2.

A sustained fall in either systolic or diastolic pressure of more than 20 mm. Hg is arbitrarily considered significant. The actual significance of any drop in pressure depends on the initial level and the symptomatic response. It is felt, however, that this standard represents a true therapeutic response.

The systolic and diastolic responses in individual patients are correlated in table 3. These results indicate that long-term therapy with hydralazine hydrochloride is moderately effective in reducing both systolic and diastolic pressure, but causes a greater reduction in systolic pressure.

Theoretically lowering of blood pressure may cause azotemia, cerebral vascular accidents, myocardial infarction, and, in patients with papilledema, respiratory failure or cardiac arrest. None of these complications occurred in patients who responded to therapy. One myocardial infarction occurred in a patient who was taking the drug. This elderly man, with moderately severe hypertension, had no drop in pressure on a total daily dose of 600 mg. The infarction was not thought to be due to hydralazine. It was noted that elderly and severely arteriosclerotic patients often became dizzy and felt extremely tired when their pressure was lowered. All patients who had a marked drop in pressure were initially weak and listless. This lasted for periods as long as several weeks. Patients with symptomatic hyperten-

TABLE 3.—*Systolic and Diastolic Response in Patients Taking Hydralazine*

	No. of Patients	%
Response in diastolic pressure only	2	4
Response in systolic pressure only	13	26
Response in both systolic and diastolic pressure	20	40
Significant response not obtained in either systolic or diastolic pressure	15	30

sion felt better after their pressure was lowered. They were less nervous; headaches disappeared; palpitation was relieved; and pulmonary congestion, to the point of acute pulmonary edema in some cases, was relieved. Blood pressures were maintained at a relatively constant level without postural hypotension and without wide swings of alternating hypertension and hypotension.

It is concluded that hydralazine hydrochloride is a safe drug that may be given to outpatients. It is moderately effective in lowering pressure; it is more effective in mild to moderate hypertension than in long-standing severe hypertension. The incidence of side-effects is high. These, however, are not serious and are generally transient. Hypertensive symptoms are relived when blood pressure is lowered.

THERAPY WITH HEXAMETHONIUM

Pharmacology.—Hexamethonium is a ganglionic blocking agent; it blocks both the sympathetic and the parasympathetic ganglions.[5]

Side-Effects.—The side-effects observed in 30 patients taking hexamethonium orally included postural hypotension in 23 (77%), constipation in 15 (50%), dry mouth in 9 (30%), blurred vision in 8 (27%), difficult urination in 6 (20%), diarrhea in 6 (20%), decrease in potency in 6 (20%), decrease in perspiration in 6 (20%), and anginal attack in 1 (3%). The period of observation varied from 1 to 15 months; the average was 7 months per patient. Side-effects are mainly the result of the action of the drug on ganglions. Parasympathetic block causes constipation, dry mouth, blurred vision, difficult urination, and decrease in potency. Sympathetic block results in postural hypotension. Diarrhea is the result of local irritation of the gastrointestinal tract.

Postural hypotension occurred in 75% of the patients. It varied from slight dizziness on standing to prostrating hypotension. It was unpredictable in onset and variable in occurrence. Some patients had isolated episodes after periods of uneventful therapy up to three months. Many patients had it daily, but with marked variation in severity. In one patient, severe postural hypotension persisted for seven days after discontinuing therapy, and during that time bowel movements were regular. To illustrate the great variability in response, the following example is given. One patient received a daily dose of 2,000 mg. of hexamethonium chloride. Pressures recorded in millimeters of mercury were:

Date	Recumbent Pressure	Standing Pressure
1-31-53	210/120	190/120
2- 7-53	180/100	140/ 90
2-14-53	174/ 90	160/ 90
2-21-53	260/150	120/ 80

Postural hypotension is a difficult, unpredictable, dangerous complication of therapy. Under certain circumstances it could be severely damaging to vital tissues, or even fatal.

Constipation occurred in 50% of the patients. Generally it was controlled with nightly doses of milk of magnesia. Severer cases required cascara and enemas. Bethanechol (Urecholine) chloride has been reported to aid in preventing severe constipation, but it did not prove effective in this series of patients.[1b] Cases of paralytic ileus have been reported in patients taking hexamethonium orally.[1b] It was not observed in this series. Patients must pay strict attention to the onset of constipation, and, in no case, should they allow more than 48 hours to pass without a bowel movement. To do so could cause paralytic ileus or severe hypotension.

Blurred vision is due to cycloplegia. This occurred to some extent in 26% of patients. It was generally of short duration, but in one patient it was almost constant and was extremely annoying. Temporary interference with micturition occurred in 20% of patients. It was necessary to catheterize some of these. As therapy was continued, this symptom disappeared in all but one patient, an elderly man with prostatic hypertrophy. Bethanechol chloride, sublingually, was of some benefit in the relief of urinary retention.[1b]

Diarrhea was intermittent and explosive. In some cases, there was an associated proctitis. Efforts to stop the diarrhea with opium derivatives, bismuth, and kaolin compounds were unsuccessful. It promptly disappeared when the therapy was stopped. No effort was made to treat the dry mouth, decrease in sweating, or the decrease in potency. It is reported that bethanechol chloride relieves dryness of the mouth.[1b] No evidence of chronic toxicity was observed.

Administration of Hexamethonium.—Hexamethonium may be administered either orally or parenterally. The method advocated by Freis for initiation of therapy with hexamethonium administered parenterally proved satisfactory in our series.[1b] Two precautions must be stressed; first, the patient must be in the hospital, and, second, a pressor amine, such as phenylephrine (Neo-Synephrine) hydrochloride, must be available for immediate intravenous use, since a precipitous, potentially fatal, fall in pressure may occur after the initial dose. In one patient, the pressure dropped from 260/160 to 90/50 mm. Hg within seven minutes during the intravenous administration of only 3 mg. of hexamethonium.

After the initial dose was determined, this amount was injected subcutaneously every eight hours. Increases were made as necessary. Experience in this series with parenteral administration was limited to four patients. The response was found to be much more predictable than after oral administration.

Oral administration of the drug is feasible in most patients and was used exclusively in obtaining the therapeutic results reported. Since the effective oral dose is up to 20 times the parenteral dose, it is important that confusion in method of administration does not occur. This happened in one patient. A 125 mg. dose, which was intended for oral administration, was given intramuscularly. Pressure rapidly fell to shock levels. Oral therapy was started with either a 62.5 or a 125 mg. dose twice daily. This was gradually increased to four times daily. Further increases were made as indicated by the pressure response. The range of total daily doses in this series was from 1,125 to 3,000 mg. It was felt that doses in excess of 3,000 mg. were not indicated. During therapy, frequent checks on pressure were made.

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[5] Paton, W. D. M., and Zaimis, E. G.: Clinical Potentialities of Certain Bisquaternary Salts Causing Neuromuscular and Ganglionic Block, Nature, London 162: 810 (Nov. 20) 1948.

Some degree of tolerance to hexamethonium developed. This was more marked after parenteral than oral therapy. It varied from a mild degree to a state of complete refractoriness to therapy. Tolerance was overcome by discontinuing therapy for periods varying from two to seven days.

TABLE 4.—*Range of Fall in Pressure in Fifteen Patients Using Hexamethonium*

	Number of Patients							
	Recumbent				Standing			
Fall in Pressure, Mm. Hg	Systolic		Diastolic		Systolic		Diastolic	
0-10	2		8		0		2	
11-20	4		5		1		6	
21-30	5		2		2		5	
31-40	2		0		1		1	
41-50	1		0		3		1	
51-60	1		0		3		0	
61-70 Significant response	0	60%	0	13%	3	93%	0	47%
71-80	0		0		0		0	
81-90	0		0		0		0	
91-100	0		0		1		0	
101-110	0		0		1		0	

Whether or not it is safe to start oral administration of hexamethonium in office patients is difficult to say. Actually, it is not safe and involves a calculated risk. The intelligence of the patient and the severity of the hypertension must be considered. An alternative regimen was used that insured some degree of safety. The initial dose was taken in the office and pressure readings taken hourly until the peak of action passed.

Results of Therapy with Hexamethonium.—Fifteen patients were treated for periods of time varying from 1 to 13 months; the average was 7 months per patient. The results obtained in lowering blood pressure are summarized in table 4.

In evaluating the response to therapy with hexamethonium, it was necessary to consider the pressure in both the recumbent and standing positions. Since postural hypotension of some degree occurred and was marked in many cases, it was often necessary to be satisfied with a moderate or very slight decrease in the recumbent pressure in order that the standing pressure would be within the physiological limits tolerated by the patient. The marked effect of the postural hypotension is clearly illustrated (table 4). That hexamethonium is a potent agent for lowering blood pressure is also shown.

There were four patients with malignant hypertension in the azotemic phase. All initially responded to therapy. One patient almost immediately became refractory and died. One patient was lost to the series; two obtained a short remission of several months but died. In all, the azotemia initially became worse, but then values fell to normal where they remained until death. Values for phenolsulfonphthalein excretion and urea clearance did not improve.

In addition to the theoretical complications of lowered pressure already described, hexamethonium therapy should be used cautiously in patients with glaucoma, renal insufficiency, and prostatic hypertrophy. One case of cerebral thrombosis occurred after three months of successful therapy. No case of azotemia occurred, and no evidence of the building up of toxic blood levels of hexamethonium occurred in patients with renal insufficiency. One severe anginal attack occurred when pressure was inadvertently allowed to fall to 90 mm. Hg systolic. Urinary retention was observed in one patient. No patients with glaucoma were treated. No myocardial infarctions occurred.

When patients with symptomatic hypertension had pressures lowered they felt better; headaches disappeared. In several patients, headaches were relieved even when pressures were high. Palpitation was improved. Pulmonary congestion and, in several cases, recurring attacks of acute pulmonary edema disappeared. Blurred vision, resulting from hypertensive retinopathy, was markedly improved. Blood pressure levels showed wide swings between hypertension and hypotension. It was not possible to maintain a relatively constant level.

It is concluded that hexamethonium is a potent drug for lowering blood pressure. Its use results in wide variations in pressure. When this fact, together with the dangerous side-effects and the tendency for tolerance to develop are considered, it is obvious that this is not an ideal drug for the routine treatment of hypertension. Its use should be restricted to selected cases of severe hypertension uncontrolled by other means. Hypertensive symptoms are relieved in patients whose pressures are lowered.

COMBINED THERAPY

The combination of hydralazine hydrochloride and hexamethonium was used only in patients with severe hypertension. The results reported may, therefore, be somewhat different from those reported by investigators using it in all cases of hypertension.

It was preferable to begin therapy with hexamethonium alone until a therapeutic response was obtained and then to add hydralazine hydrochloride to the regimen. At this point either of two methods of administration was effective. One was to give hexamethonium at 7:00 a. m., 1:00 p. m., and 7:00 p. m. and hydralazine hydrochloride at 10:00 a. m., 4:00 p. m., and 10:00 p. m. A more convenient method was to give the drugs simultaneously four times daily. Doses of hydralazine varied from 75 to 400 mg. and those of hexamethonium from 250 to 3,000 mg. daily.

TABLE 5.—*Range of Fall in Pressure in Fourteen Patients Using Both Hydralazine and Hexamethonium*

	Number of Patients							
	Recumbent				Standing			
Fall in Pressure, Mm. Hg	Systolic		Diastolic		Systolic		Diastolic	
0-10	3		4		1		2	
11-20	3		4		0		3	
21-30	4		3		1		6	
31-40	2		3		2		1	
41-50 Significant response	1	57%	0	43%	6	93%	2	64%
51-60	0		0		1		0	
61-70	1		0		1		0	
71-80	0		0		2		0	

Fourteen patients were treated for periods varying from 1 to 11 months; the average was 6 months per patient. The results obtained in lowering blood pressure are summarized in table 5. The clinical response in patients responding to therapy was similar to that already described when each drug was used alone.

When the results in table 5 are compared with therapeutic results using each drug alone, several facts are apparent (table 6). In the recumbent position, the percentage of patients obtaining a significant fall in systolic pressure is approximately equal in all three methods of therapy. The recumbent diastolic response is poor when hexamethonium is used alone. It is approximately equal when hydralazine hydrochloride is used alone or in combination. In the standing position, an equal number have a significant fall in systolic pressure using hexamethonium alone or in combination; hydralazine alone is less effective. The standing diastolic response is approximately the same using either drug alone, but slightly better when using a combination.

It was hoped that hydralazine would prevent or modify the wide variations in pressure during hexamethonium therapy. This was not the case. The same difficulties occurred as when either drug was used alone. A slightly greater percentage of patients had a significant response in standing diastolic pressure during combination therapy, but the main pressure drop was brought about by hexamethonium. It is felt, therefore, that combination therapy offers little advantage over therapy with hexamethonium alone.

TABLE 6.—*Comparison of the Three Methods of Therapy in Producing a Significant Fall in Blood Pressure*

	Recumbent		Standing	
	Systolic	Diastolic	Systolic	Diastolic
Hydralazine..........	66%	44%	66%	44%
Hexamethonium.......	60%	13%	93%	47%
Combination..........	57%	43%	93%	64%

COMMENT

No means was found to predict which patients would respond to therapy. Four patients who previously had sympathectomies were treated. Their response was no different from that of other patients.[4] All patients with a presumed renal hypertension responded well.

Therapeutic results obtained treating hypertension must be critically analyzed. The course of hypertensive vascular disease is in itself subject to wide variations. The emotional and stress situation varies. It is difficult to discount the placebo effect of any new medicament. Pressures taken at home and in the office may very considerably. Because of these variables, the actual advantage of therapy with these drugs in asymptomatic patients cannot be demonstrated until long-term studies of both treated and control groups are carried out.

Successful therapy with these drugs involves understanding on the part of both the patient and the physician. The patient must understand that their administration is highly individualized, requires close supervision, involves certain side-effects, and is necessarily a long-term plan of therapy. The physician must be thoroughly familiar with the pharmacology, method of administration, and side-effects of these drugs. He must not expect immediate results but be willing to increase doses gradually as indicated by therapeutic response.

SUMMARY

Hydralazine hydrochloride is a safe, moderately effective, antihypertensive drug. It can be given to office patients. The incidence of toxic effects is high, but these are generally transient. Of patients able to tolerate the drug, 66% obtained a significant fall in systolic pressure and 44% a significant fall in diastolic pressure. Thirty per cent did not respond to therapy. Patients in whom the pressure was significantly lowered were relieved of hypertensive symptoms.

Hexamethonium is a powerful, dangerous, antihypertensive drug. Its oral use results in unpredictable, wide variations in blood pressure. Starting oral therapy on office patients is not completely safe. Its main effect is brought about through postural hypotension. While standing, 93% of patients had a significant fall in systolic pressure and 47% in diastolic pressure. Patients in whom the pressure was significantly lowered were relieved of hypertensive symptoms. The use of hexamethonium should be restricted to patients with severe hypertension that does not respond to other measures.

Combined use of these drugs results in only slight advantage. The major therapeutic result in combined therapy is from hexamethonium. Elderly and severely arteriosclerotic patients do not tolerate a lowered blood pressure well. These drugs should be used with caution in such patients.

These drugs are not a completely satisfactory treatment for hypertension. They are, however, the best now available. Perhaps their greatest value will be the stimulation of investigation in similar and in new drugs.

250 E. Superior St. (11) (Dr. Hilker).

Development of the Child.—There is nothing as helpless as the newborn baby. . . . If a child is kept babyish, he will remain emotionally immature and unable to face the demands of life. He is likely to be timid and fearful but also demonstrative and appealing, always seeking someone on whom to depend. As the child grows older, the wise parent will reserve interference for major matters and leave the child to rely on himself in coping with minor problems, even if the solution is not all that could be desired. Sometimes the parent mistakes precocity for self-reliance. The child may want to interfere in everything that elders are doing but be unable to carry out the most elementary task on his own. It is a universal weakness to want to skip grades and one that appears very early. The mentality of the office boy who wants to tell the management and officials how to do their jobs, but resents the duties of an office boy, appears already in the nursery. . . . He must be content to start at the beginning and to learn step by step. He should not be permitted to acquire the interests of his elders at the expense of the normal activities of a small child. Next comes the need for companionship. Human beings are social creatures and need to live together. All social creatures have to learn to limit themselves in various ways for the sake of their neighbours. . . . It is well to remember, however, especially in these days of small families, that adults cannot serve as companions to children, for there can be no equality in the relationship. Satisfactory social adjustment can be achieved only through the give and take association of peers.—H. M. North, M.D., Development of the Child, *Medical Journal of Australia,* May 2, 1953.

VALUE OF EXERCISE IN PERIPHERAL ARTERIAL DISEASE

Lawrence H. Wisham, M.D., Arthur S. Abramson, M.D.
and
Alfred Ebel, M.D., Bronx, N. Y.

Many therapeutic agents are used in the treatment of occlusive peripheral arterial disease. Most of them are utilized to obtain an increased blood flow in the tissues of the extremities. An agent commonly used is therapeutic exercise. Exercise is done either in the form described by Buerger or that described by Buerger and modified by Allen.[1] Allen, Barker, and Hines state: "It is surprising that this method of treatment has been used so widely and yet there has been so little curiosity manifested as to whether or not it is effective in increasing the flow of blood through the extremity. The theory apparently has been that if the blood vessels were alternately emptied and distended, they would eventually accept an increased function in the transportation of blood. So far as we know there is not the slightest physiologic evidence that this occurs."[1]

It was the purpose of our studies to determine whether these exercises actually do produce an increased blood flow in the extremities of persons with and without peripheral arterial disease. It was also desired to determine quantitatively the changes in blood flow produced by a series of exercises requiring progressively greater muscular effort. The method used was that of measuring the clearance of radiosodium (Na^{24}) from tissues. The rate of this clearance reflects the effective circulation in these tissues.[2] In this way the effects of exercise were determined both during and after exercise.

Because, in a normal person, blood flow is greatly increased in muscles exercised against resistance,[2b] the effectiveness of this form of therapy in peripheral arterial disease was also studied and compared with the more commonly used forms.

METHOD

The 10 normal subjects tested in this study were volunteers. They had no symptoms of peripheral vascular disease and had palpable pedal pulses with normal oscillometric indexes. The 19 subjects who had arterial disease of the lower extremities were selected from an active peripheral vascular disease clinic on the basis of the fact that all had intermittent claudication of varying degree but no evidence of gangrene.

Muscle blood flow was determined by use of the radiosodium clearance technique, and the results were analyzed according to the method described by one of us.[2c] The clearance half life is the time taken for the activity initially present to be reduced to one half. The clearance constant (K) equals the natural logarithm of 2 divided by the clearance of half life ($T\ ½$): $K = 0.693\ /T\ ½$. Injections of 0.1 cc. of isotonic sodium chloride containing 1 to 3 μc of Na^{24} were made into the belly of the gastrocnemius muscle. A 22 gage, 1 in. (2.54 cm.) needle was used; the needle was inserted to the hilt in order to approximate the same depth of injection in the same person in all studies. A light weight Geiger counter was strapped to the leg at the site of the injected material, and the radioactivity present was recorded on an automatic register at one minute intervals. This method permitted exercise of the extremity and, at the same time, maintenance of the relationship of the counter to the site of the injected material throughout the experiment.

In all cases, the clearance rate was determined at rest. This was done after the subject had remained in the supine position in a relaxed fashion for 20 minutes. These clearance rates were determined in order to compare them with those obtained during exercise and five minutes after cessation of exercise.

Three specific forms of exercise were given in all cases. In exercise 1, while the patient was supine, the leg with the counter strapped to it was elevated by an assistant to a 60 degree angle where it was supported for two minutes. Then the assistant placed the leg in a dependent position for three minutes and then in a horizontal position for five minutes. This cycle was performed six times. At no time was the patient required to contract any leg muscles in performing these maneuvers. In exercise 2, the same procedures were followed except the patient performed active plantar and dorsal flexions of his foot 30 times a minute while the leg was in the elevated and in the dependent positions. In exercise 3, while the patient was supine, a therapist exerted considerable manual resistance to active plantar flexion. Dorsiflexion was unopposed. This resistance was offered in such a manner as to permit full plantar flexion 30 times a minute for 20 minutes. Most of the subjects complained of muscle fatigue at varying intervals. When this occurred, they were permitted to rest for one minute before exercise was resumed.

RESULTS

Controls During Exercise.—The four normal subjects in whom the clearance rate was determined during exercise showed an increase compared to the resting clearance rate. The greatest increase occurred with exercise 3. The average increase, compared to the resting rate, was 33% during exercise 1 (only two of the four studies were significant) 63% during exercise 2, and 114% during exercise 3 (table 1 and figure).

Patients with Arterial Disease During Exercise.—In eight patients with peripheral arterial disease in whom the clearance rate was found during exercise, the average increase, compared to the resting clearance rate, was 17% for exercise 1, 34% for exercise 2, and 84% for

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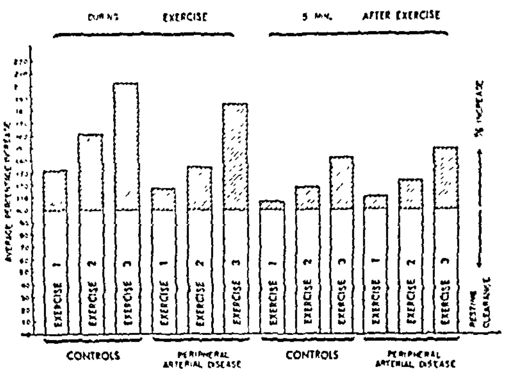
From the Radioisotope Unit, Physical Medicine Rehabilitation Service, and the Peripheral Vascular Disease Clinic, Veterans Administration Hospital.

1. Allen, E. V.; Barker, N. W., and Hines, E. A., Jr.: Peripheral Vascular Diseases, Philadelphia, W. B. Saunders Company, 1946.

2. (*a*) Kety, S. S.: Measurement of Regional Circulation by the Local Clearance of Radioactive Sodium, Am. Heart J. **38**: 321, 1949. (*b*) Franke, F.; Boatman, J.; George, R., and Moses, C.: Effect of Physical Factors on Radiosodium Clearance from Subcutaneous and Intramuscular Sites in Animals, Proc. Soc. Exper. Biol. & Med. **74**: 417, 1950. (*c*) Wisham, L. H., and Yalow, R. S.: Some Factors Affecting the Clearance of Na^{24} from Human Muscle, Am. Heart J. **43**: 67, 1952.

exercise 3. In two of these patients, the clearance constant during exercise 1 was 4% less than that during rest (table 2 and figure).

Controls After Exercise.—In six normal subjects in whom the clearance rate was determined five minutes after the cessation of exercise, there was an increase in the rate with all types of exercise except in one subject who showed no increase after exercise 1. The average increase, as compared to resting levels, was 7% for exercise 1, 17% for exercise 2, and 41% for exercise 3 (table 3 and figure).



Average percentage increase of clearance constant (K) in control patients and in patients with peripheral arterial disease during and after exercise.

TABLE 1.—*Radiosodium Clearance Constants of Control Subjects During Exercise*

Rest	Exercise 1		Exercise 2		Exercise 3	
Clearance Constant (K), Min.$^{-1}$ *	Clearance Constant (K), Min.$^{-1}$	Increase, %	Clearance Constant (K), Min.$^{-1}$	Increase, %	Clearance Constant (K), Min.$^{-1}$	Increase, %
.103	.173	68	.231	124	.231	124
.076	.0840	10	.087	15	.139	65
.099	.154	54	.183	63	.252	152
.089	.092	2	.139	51	.213	114
Average, %...........		33		63		114

* Per minute.

TABLE 2.—*Radiosodium Clearance Constants of Patients with Arterial Disease During Exercise*

Rest	Exercise 1		Exercise 2		Exercise 3	
Clearance Constant (K), Min.$^{-1}$ *	Clearance Constant (K), Min.$^{-1}$	Increase, %	Clearance Constant (K), Min.$^{-1}$	Increase, %	Clearance Constant (K), Min.$^{-1}$	Increase, %
.076	.079	3	.099	31	.173	128
.099	.096	—4	.146	46	.185	85
.096	.099	3	.111	16	.185	92
.068	.063	—4	.087	28	.103	51
.079	.111	40	.096	21	.154	95
.076	.132	74	.139	83	.154	103
.116	.126	9	.146	26	.198	71
.120	.139	16	.146	22	.173	44
Average, %...........		17		34		84

* Per minute.

Patients with Arterial Disease After Exercise.—In 11 patients with peripheral arterial disease in whom the clearance rate was determined five minutes after the cessation of exercise, all showed an increase after exercise 3. There were four who showed either no increase or a slower clearance rate after exercise 1 and three who showed either no increase or a slower clearance rate after exercise 2. The average increase, as compared to the resting rate, was 8.7% for exercise 1, 23% for exercise 2, and 47% for exercise 3 (table 4 and figure).

COMMENT

Rates of radiosodium clearance are reproducible with a plus or minus 15% error in the same person over varying time periods. An increase in the clearance constant of less than 15% should not be considered significant for a single study. In a series of determinations in various subjects, however, a consistent increase of even less than 15% must be considered statistically significant. If changes in the clearance constant of less than 15% are eliminated, two of four controls and five of eight patients with peripheral arterial disease showed no increase during exercise 1. During exercises 2 and 3, all those persons tested showed increases.

TABLE 3.—*Radiosodium Clearance Constants of Control Patients Five Minutes After Cessation of Exercise*

Rest	Exercise 1		Exercise 2		Exercise 3	
Clearance Constant (K), Min.$^{-1}$ *	Clearance Constant (K), Min.$^{-1}$	Increase, %	Clearance Constant (K), Min.$^{-1}$	Increase, %	Clearance Constant (K), Min.$^{-1}$	Increase, %
.087	.089	2	.089	2	.126	45
.087	.089	2	.111	22	.116	33
.132	.132	0	.146	10	.163	23
.096	.099	3	.126	31	.154	60
.089	.099	11	.107	20	.120	35
.092	.116	26	.111	20	.139	50
Average, %...........		7		17		41

* Per minute.

TABLE 4.—*Radiosodium Clearance Constants of Patients with Arterial Disease Five Minutes After Cessation of Exercise*

Rest	Exercise 1		Exercise 2		Exercise 3	
Clearance Constant (K), Min.$^{-1}$ *	Clearance Constant (K), Min.$^{-1}$	Increase, %	Clearance Constant (K), Min.$^{-1}$	Increase, %	Clearance Constant (K), Min.$^{-1}$	Increase, %
.076	.081	6.5	.120	58	.111	45
.069	.069	0	.055	—20	.087	26
.053	.043	—19	.055	4	.146	75
.068	.071	3	.077	13	.077	13
.069	.079	14	.087	26	.116	68
.082	.116	41	.126	53	.146	78
.084	.076	—9	.084	0	.092	9
.038	.043	13	.063	66	.055	45
.049	.051	4	.051	5	.076	47
.060	.060	0	.059	0	.087	45
.073	.103	41	.107	47	.126	73
Average, %...........		8.7		23		47

* Per minute.

Following cessation of exercise, the clearance rate will diminish as the metabolic effects of exercise subside. It is, therefore, possible that a well-trained person would show no increase in clearance rate five minutes after cessation of exercise because enough blood was brought to the part during and shortly after exercise to remove the accumulated metabolites quickly. This may explain the reason for which the average increase in controls after exercise was somewhat less than that for patients with vascular disease.

If increases in clearance of less than 15% are eliminated, 5 of 6 controls and 9 of 11 patients with vascular disease had no response five minutes after exercise 1; 2 of

6 controls and 6 of 11 patients with vascular disease had no response five minutes after exercise 2; and none of 6 controls and two of 11 patients with arterial vascular disease had no response five minutes after exercise 3.

These findings indicate that the mechanical concept of the passive emptying and distention of the vascular bed in an alternate fashion as a stimulus to increased blood flow must be discarded. No evidence is being presented for any long-term effectiveness of exercise as therapy. It is evident, however, that muscular contraction is an effective stimulus for increasing blood flow during and for a short time after exercise. In a general way, the blood flow increases as the muscular effort increases. Even in passive motion, as in exercise 1, it can be demonstrated electromyographically that, except in very relaxed persons, the subject makes an unconscious attempt to aid the motion of his limb.[3] This minor muscular contraction may produce in some cases minor increases in blood flow. The increasing muscular effort through exercises 2 and 3 produces an increasing blood flow, if not proportionately, at least in the same direction. The probable mechanism is through the mediation of vasodilator metabolites produced by the exercise.

SUMMARY AND CONCLUSIONS

1. Passive postural exercises do not increase blood flow significantly.
2. Active exercise is effective in increasing blood flow during and shortly after its administration.
3. The effect of exercise increases with increase in muscular effort.
4. The most effective form of exercise is that in which the muscles of the involved extremities are offered considerable resistance against their contraction.

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3. Unpublished data.

ETHAVERINE IN THE TREATMENT OF ANGINA PECTORIS

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and
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In laboratory animals papaverine acts as a potent coronary vasodilator drug.[1] Studies [2] indicate that ethaverine (6,7-diethoxy-1-[3,4-diethoxybenzyl] isoquinoline), the ethyl analogue of papaverine, is a general visceral and vascular spasmolytic agent. In recent experiments concerning the coronary blood flow of quickly isolated, beating rabbit hearts, ethaverine has been shown to be equal to papaverine in peak potency but of more durable action, so that in total effect summed up over time it is more effective.[3] Ethaverine has the advantage of not being classified as a narcotic under the Harrison Act.[4] The toxicity of ethaverine is roughly one-third that of papaverine, and large doses have been given in man without untoward effect. In a previous study,[5] 16 patients with relatively stable angina pectoris were given ethaverine over periods of 4 to 20 weeks, followed by placebo therapy for corresponding periods. Seven of these 16 patients experienced marked reduction in frequency and severity of angina while taking ethaverine, and 4 patients experienced similar improvement while on placebo therapy.

MATERIAL AND METHODS

In order to avoid the common errors of physician enthusiasm and "new drug" psychological effect on the patient and because angina pectoris exhibits spontaneous variations, it was decided to perform a "double-blind" experiment for more accurate evaluation of ethaverine in this disorder. For the same reasons Greiner and coworkers [6] employed a similar technique in their evaluation of visammin (khellin) in angina pectoris. Twenty-two patients were selected from our clinic for alternate periods of treatment with ethaverine and placebo. Ages ranged from 40 to 77 years, the average age being 57 years. All had proved coronary artery disease with moderately severe to incapacitating angina pectoris. Most patients had demonstrated stable anginal patterns for several months before starting the experiment. Seventeen of the 22 patients had electrocardiographic changes consistent with coronary heart disease, and 17 had had proved or suspected myocardial infarction in the past. Each was instructed to continue those medicines, except papaverine or xanthine drugs, in use before the experiment was initiated, and care was taken that no other change in regimen was made.

Daily report cards were employed, on which patients recorded the number of attacks of angina, the number

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Mrs. Doris Bray supplied technical assistance.

The drugs used in this study were supplied by Parke, Davis & Company, Detroit.

From the Department of Medicine, Duke University School of Medicine, and the Cardiovascular Service, Duke Hospital. Drs. Voyles and Sieber were aided by a traineeship from the National Heart Institute, United States Public Health Service.

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2. von Berkesy, L.: Klinische Erfahrungen mit Perparin, Therap. d. Gegenw. **73:** 55-58 (Feb.) 1932. Pouchet, G.: Sur un nouvel alcaloïde synthétique dérivé de la papavérine: La perparine, Bull. Acad. de méd., Paris **110:** 724-729 (Dec. 19) 1933. Spychala, W.: Clinical Observation on Action of Perparin, Polska gaz. lek. **13:** 677-679 (Sept. 9) 1934. Dobrzanski, K.: Clinical Research on Perparin, ibid. **14:** 44-47 (Jan. 20) 1935.

3. Winder, C. V.; Thomas, R. W., and Kamm, O.: Relative Experimental Coronary Vasodilator Potencies of Papaverine and its Ethyl Analogue, Ethaverine (Diquinol, Perparin), J. Pharmacol. & Exper. Therap. **100:** 482-488 (Dec., pt. 1) 1950.

4. Himmelsbach, C. K.: Clinical Studies of Drug Addiction: I. The Absence of Addiction Liability, in "Perparin," supp. 122, United States Treasury Department, Public Health Service, 1937.

5. Voyles, C. M.: Unpublished data.

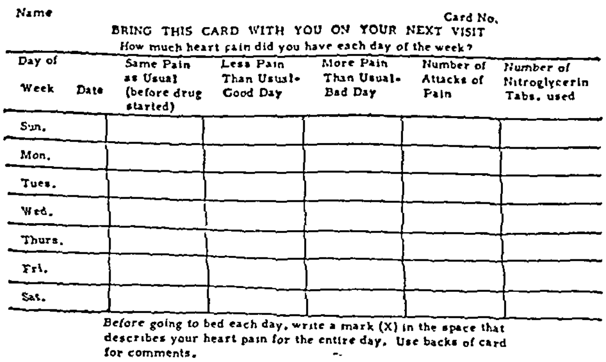
6. Greiner, T., and others: A Method for the Evaluation of the Effects of Drugs on Cardiac Pain in Patients with Angina of Effort: A Study of Khellin (Visammin), Am. J. Med. **9:** 143-155 (Aug.) 1950.

of nitroglycerin (glyceryl trinitrate) tablets used, and whether the day was a "good," "bad," or "unchanged" one. An illustration of the daily report card used is given in the figure. This particular method of evaluating patient response to drug has been decidedly helpful; patients have been able to keep a more accurate account of angina than by other means, including a daily diary. In most instances reports were recorded in a satisfactory manner.

Two capsules, each containing 50 mg. of ethaverine, were given four times daily for a total dosage of 400 mg. Placebo capsules of identical appearance containing lactose were prescribed in the same number and in similar containers; one preparation was labeled D-47 and the other D-48. Patients were informed that the drugs in question were experimental, of unproved value, and that both drugs would be used alternately. A technician, who had no contact with the patient other than dispensing the drugs, started alternate patients on placebo or ethaverine, each patient receiving six weeks of therapy on each preparation. The physicians who evaluated the patients' response had no knowledge of which preparation patients were receiving until the entire series of patients had completed the predetermined course of treatment. Patients were seen and examined at intervals of three to six weeks. Electrocardiograms and chest roentgenograms were routinely repeated for serial changes.

RESULTS

The results of therapy with ethaverine alternating with placebo over periods of 12 weeks in 22 patients with angina are shown in the table. Two patients died suddenly as a result of myocardial infarction during the study, one at the completion of the study while on placebo, and one, not included in this series, after 30 days of therapy with placebo alone. The total number of days all patients received ethaverine was 926, and they received placebo 914 days. There are two points of interest in these findings. First, the percentage of unchanged (19.2%), good (73%), and bad (7.8%) days on ethaverine are strikingly similar to the results with placebo, 18.3% unchanged, 74.4% good, and 7.3% bad. Second, the majority of days were described as good days by patients undergoing treatment with either placebo or ethaverine.



Name

Card No.

BRING THIS CARD WITH YOU ON YOUR NEXT VISIT

How much heart pain did you have each day of the week?

Day of Week	Date	Same Pain as Usual (before drug started)	Less Pain Than Usual-Good Day	More Pain Than Usual-Bad Day	Number of Attacks of Pain	Number of Nitroglycerin Tabs. used
Sun.						
Mon.						
Tues.						
Wed.						
Thurs.						
Fri.						
Sat.						

Before going to bed each day, write a mark (X) in the space that describes your heart pain for the entire day. Use backs of card for comments.

Report card used by patients with angina pectoris during treatment with ethaverine and placebo.

The table gives each patient's total number of attacks of pain and the number of nitroglycerin tablets employed while taking each preparation. Patients 2 and 9 took nitroglycerin to prevent pain as well as to relieve pain, but this method of prophylaxis, followed through the entire study, does not influence the results. Patients 2 and 21 are the only ones who showed a signficant difference in the number of attacks of pain: the former improved by ethaverine, and the latter by placebo. The sum totals, as noted at the bottom of the table, reveal an unusual similarity in the effectiveness of the two preparations.

Effect of Ethaverine and Placebo Attacks of Pain on Number of Nitroglycerin Tablets Used

Patient	No. of Attacks of Pain		No. of Nitroglycerin Tablets Used	
	Ethaverine	Placebo	Ethaverine	Placebo
1	76	69	83	71
2	0	15	100	175
3	4	0	10	0
4	4	11	13	26
5	15	8	10	5
6	20	24	9	36
7	21	15	24	15
8	6	10	7	11
9	30	30	54	58
10	53	47	41	47
11	6	2	6	2
12	0	0	0	0
13	5	5	5	8
14	4	8	4	8
15	277	270	256	239
16	153	145	42	72
17	6	5	6	13
18	19	10	19	10
19	3	0	5	3
20	52	52	35	42
21	126	63	193	48
22	43	51	45	52
Total	926	810	967	941

COMMENT

In this group of patients the ethyl analogue of papaverine has been found to be no more effective in reducing either the severity or frequency of angina pectoris than similar amounts of lactose given under "double-blind" conditions. It is interesting to note that, with few exceptions, patients were significantly improved during therapy, both with ethaverine and with placebo. Experiments of this type afford an excellent form of psychotherapy, in that a new and perhaps promising form of therapy is offered by physicians in whom patients have confidence. Considerable attention also is devoted to the patient by virtue of frequent follow-ups at relatively short intervals. It is well known that angina pectoris may be affected by many factors other than exertion alone. Outstanding examples are variations in mood, emotional upsets, degree of security, fatigue, desire and hope for improvement, food load, and exposure, particularly to cold. It has been our observation that most of the patients in this series have exhibited cyclic variations in frequency and severity of angina pectoris irrespective of the type of medication. Periods of marked improvement extending from a few days to several weeks have been observed to recur periodically. This phenomenon leads to false assumptions regarding the efficacy of any drug being given during such periods of improvement.

Undesirable side-effects thought to be related to ethaverine therapy were experienced by 3 of 20 patients while receiving 400 mg. of the drug daily during a previous study,[5] but by no patients during the course of this study. Two patients experienced mild cramping pain in the low abdomen and loose stools over a period of several days; relief followed reduction in dosage or substitution of placebo. These symptoms were not of sufficient severity to cause the drug to be permanently discontinued. One patient experienced a marked increase in frequency and severity of angina during each of two 48 hour periods of ethaverine therapy, with prompt relief following cessation of therapy in each instance.

SUMMARY AND CONCLUSIONS

In experimental animals it has been shown that ethaverine, the ethyl analogue of papaverine, has a more prolonged and effective vasodilating action on the coronary arteries than papaverine. A "double-blind" study alternating ethaverine with placebo was made in 22 patients with stable angina pectoris. The majority of patients reported subjective improvement to an equal degree with both ethaverine and placebo. Ethaverine was no more effective than placebo therapy in reducing the severity or frequency of attacks of angina pectoris. Cyclic variations in frequency and severity of angina pectoris irrespective of medication were noted in this series.

ANEMIA IN BACTERIAL ENDOCARDITIS

William B. Parsons Jr., M.D., Talbert Cooper, M.D.
and
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The frequent occurrence of anemia in bacterial endocarditis has not been sufficiently emphasized. Recognition of this association is particularly important in cases in which the use of antibiotic therapy for an undiagnosed febrile illness may have masked some of the usual symptoms and signs of the disease. Anemia and other hematological disturbances may occasionally even overshadow the more familiar manifestations of bacterial endocarditis to such a degree that the disease may be mistaken for a primary hematological disorder. Since antibiotic therapy cures most cases of subacute bacterial endocarditis, it is important that the diagnosis of anemia be made correctly and as early as possible.

The occurrence of anemia along with bacterial endocarditis is usually mentioned in descriptions of the disease. In 1927 Pepper [1] reported anemia in 19 of 20 cases of subacute bacterial endocarditis caused by nonhemolytic Streptococcus viridans. In 1939 Middleton and Burke [2] reported anemia, usually of mild degree, in 63.5% of 88 cases of bacterial endocarditis. Dowling and his associates [3] stated that a mild to moderate anemia was present in all of 25 cases of staphylococcic endocarditis. Detailed discussion of the pathogenesis of the anemia of bacterial endocarditis is beyond the scope of this paper; however, in addition to the interference with normal iron metabolism noted in anemia of infection by Cartwright and his associates,[4] factors such as toxic suppression of bone marrow function, hemolytic activity, or a hypersplenic influence may warrant consideration in some cases. Another hematological change is the occurrence in the blood of phagocytic reticuloendothelial cells (in 15 to 20% of patients with bacterial endocarditis), which, although not specific, is strong suggestive evidence of this disease. No other distinctive changes in the blood have been consistently noted.

This report is a review of a series of 200 cases of bacterial endocarditis seen at the Mayo Clinic in the years 1944 through 1949. Only cases in which clinical evidence of bacterial endocarditis was substantiated by positive blood cultures or by necropsy were included in the study. The incidence of various symptoms and signs was compared with that of anemia and other hematological findings. The duration of the disease was estimated as closely as possible to determine whether this factor bore any consistent relation to the severity of hematological changes.

RESULTS

Age and Sex.—The ratio of males to females was 2 to 1. A wide range of ages was found, with only 44% of patients between the ages of 11 and 40 years, as compared to 68% found in this age group by Middleton and Burke.[2]

History of Cardiac Abnormality.—Eleven patients were known to have congenital heart disease or a murmur present since birth. Fifty-seven patients had a history of rheumatic fever, and an additional five patients had had chorea. A group of 49 patients had been informed of the presence of a heart murmur at some previous time. One patient had been told that his heart was enlarged, and another mentioned a previous diagnosis of fibrillation. The remaining 76 patients (38%) had no history of rheumatic fever or cardiac murmur prior to the current illness.

Bacteriological Findings.—Cultures of the blood were made in 197 cases. The remaining three cases proved at necropsy to be bacterial endocarditis. In 169 cases

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From the Mayo Foundation (Dr. Parsons), and the Division of Medicine, Mayo Clinic (Drs. Cooper and Scheifley).

[1] Pepper, O. H. P.: The Hematology of Subacute Streptococcus Viridans Endocarditis, J. A. M. A. **89**: 1377-1380 (Oct. 22) 1927.

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[3] Dowling, H. F.; Lepper, M.; Caldwell, E. R., and Spies, H. W.: Staphylococcic Endocarditis: An Analysis of 25 Cases Treated With Antibiotics, Together With a Review of the Recent Literature, Medicine **31**: 155-175 (May) 1952.

[4] Cartwright, G. E., and others: The Anemia of Infection: Hypoferremia, Hypercupremia, and Alterations in Porphyrin Metabolism in Patients, J. Clin. Investigation **25**: 65-80 (Jan.) 1946. Cartwright, G. E., and others: The Anemia of Infection: The Experimental Production of Hypoferremia and Anemia in Dogs, ibid. **25**: 81-86 (Jan.) 1946. Cartwright, G. E., and Wintrobe, M. M.: Chemical, Clinical, and Immunological Studies on the Products of Human Plasma Fractionation: The Anemia of Infection: Studies on the Iron-binding Capacity of Serum, ibid. **28**: 86-98 (Jan.) 1949.

(84.5%), the disease was caused by streptococci. Twenty-three cases (11.5%) were caused by micrococci, two by Escherichia coli, two by Hemophilus influenzae, and one by an unidentified gram-negative bacillus. A preliminary survey of data revealed no significant differences in duration, symptoms, or hematological changes of streptococcic and micrococcic endocarditis; therefore, the cases are not considered separately according to the organisms involved. The average duration of illness for the entire series was 5.1 months.

Symptoms.—The presenting symptoms were as follows: fever, 143 cases; loss of weight (average 27 lb. [12.24 kg.]), 83 cases; chills, 66 cases; weakness, 66 cases; fatigue, 54 cases; sweats, 45 cases; anorexia, 36 cases; headache, 30 cases; malaise, 23 cases; dyspnea, 22 cases; edema of ankles, 13 cases; chest pain, 19 cases; palpitation, 5 cases; orthopnea, 5 cases; abdominal pain, 18 cases; nausea and vomiting, 9 cases; nausea alone, 6 cases; bloating, 7 cases; diarrhea, 6 cases; arthralgia, 17 cases; arthritis, 11 cases; muscular pains, 15 cases; backache, 7 cases; painful fingers, 10 cases; petechiae, 8 cases; stroke (hemiplegia, hemiparesis, hemiparesthesia), 12 cases; aphasia, 4 cases; stiff neck, 4 cases. These symptoms not only represent the principal complaints volunteered by the patients but include all significant symptoms elicited in the histories. The more frequently occurring manifestations were constitutional and nonspecific. In contrast to the series of Middleton and Burke[2] is the infrequency in our patients of symptoms related to the heart as well as to other specific organs or systems.

Physical Findings.—Temperature exceeding 100 F was recorded in 150 patients (75%). In the remaining 25%, no temperature reading of 100 F or higher was obtained. Roentgenologic examination revealed definite cardiac enlargement in 74 patients (37%), doubtful or slight enlargement in 8 (4%), and no evidence of cardiac enlargement in 118 (59%). Cardiac murmurs were heard in all patients at some time during the course of the illness. In some no murmur was audible until late in the disease, and in others a murmur was present transiently or was not believed to be suggestive of a valvular lesion.

Enlargement of the spleen, usually of minimal degree but occasionally marked, was present in 88 patients (44%). In 7 patients (3.5%) the tip of the spleen was questionably palpable, and in the remaining 105 patients (52.5%) the spleen was not palpable. Hepatomegaly, usually associated with other evidence of congestive failure, was found in 30 patients (15%). Clubbing of the fingers was present in only 34 patients (17%). Evidence of embolization (in which we arbitrarily include the presence of petechiae or Osler's nodes) was present at some time in 122 patients (61%). In a small number, the evidence was subjective; for example, a history of pain in the splenic area, pain of pleuritic nature, or painful fingertips.

Laboratory Studies.—The hemoglobin concentration was recorded in 199 patients. The values obtained on the first examination are seen in table 1. Values of less than 12 gm. per 100 cc. of blood in males or less than 11 gm. per 100 cc. in females are considered indicative of anemia. A total of 150 patients (75%) had initial hemoglobin concentrations below these lower limits of normal. Twenty-eight patients (14.1%) had concentrations of 9 gm. per 100 cc. or less. Only 14 patients (7%) had values between 13 and 15 gm. per 100 cc., whereas in a group of normal persons most of the values are in this range, particularly in a group in which males predominate, as they do in this series. The relation of hemoglobin concentrations to the duration of bacterial endocarditis, as nearly as could be estimated from the histories, is shown in table 2. No consistent relationship can be found.

Erythrocyte counts were recorded in 191 cases. The values obtained on admission are shown in table 3. Counts of less than 4 million erythrocytes per cubic millimeter are considered to signify anemia in either sex.

TABLE 1.—*Concentration of Hemoglobin (Photoelectric Method) in 199 Cases of Bacterial Endocarditis*[*]

Hemoglobin, Gm. per 100 Cc. of Blood	Males	Females	Total
15.0 and over	2	..	2
13.1-15.0	13	1	14
12.1-13.0	11	9	20
11.1-12.0	..	13	13
Total nonanemic patients	26	23	49
11.1-12.0	29[†]	..	29
9.1-11.0	63	30[‡]	93
7.1- 9.0	9	13	22
7.0 or less	5	1	6
Total anemic patients	106	44	150

[*] No determination made in one case.

[†] In men concentrations of less than 12 gm. per 100 cc. indicate anemia.

[‡] In women concentrations of less than 11 gm. per 100 cc. indicate anemia.

TABLE 2.—*Concentration of Hemoglobin and Duration of Disease in 200 Cases of Bacterial Endocarditis*

	Average Duration, Months		
Hemoglobin, Gm. per 100 Cc. of Blood	Males	Females	Entire Group
15.0 and over	0.5	...	0.5
13.1-15.0	4.0	(9.0)[*]	4.0
11.1-13.0	5.6	3.9	4.9
9.1-11.0	4.4	4.6	4.5
7.1- 9.0	6.2	3.1	4.0
7.0 or less	3.1	(1.5)[*]	3.1

[*] One patient only.

A color index was not calculated for each patient, but the anemia, when present, tended to be slightly hypochromic, although the cells were normochromic in many. These observations were confirmed by morphological examination of blood smears. Leukocyte counts were performed on all 200 patients. A leukocyte count greater than 10,000 cells per cubic millimeter was noted in only 72 patients (36%), of whom 52 had counts between 10,000 and 15,000 cells per cubic millimeter. One hundred fourteen patients (57%) had initial counts of between 5,000 and 10,000 leukocytes per cubic millimeter, and 14 patients (7%) had counts of less than 5,000 cells per cubic millimeter.

Stained smears of peripheral blood from 122 patients were examined. In most smears, nothing of diagnostic significance was noted. The most frequent abnormalities in the erythrocytes were increased regeneration, increased rouleaux formation, and hypochromasia. Toxic granulation of the polymorphonuclear leukocytes, left-shifted granulocytes, and myeloid immaturity were frequently seen. Reticuloendothelial cells were observed in 37 patients, with evidence of phagocytosis in 11 of these. In only a small percentage of cases was the first drop of blood from the ear lobe examined. On the basis of experience in recent years, it is reasonable to assume that a higher incidence of phagocytic reticuloendothelial cells would have been found if the examination had been performed on a smear prepared from the first drop of blood.

Examinations of sternal marrow were not performed routinely on patients in this series. This examination was carried out as a part of the differential diagnostic survey in six patients, but no consistent changes were observed. The erythrocyte sedimentation rate (Westergren method) was recorded for 189 patients. The rates were 30 mm. or less per hour in 14 patients, between 31 and 60 mm. per hour in 52 patients, between 61 and 100 mm. per hour in 83 patients, and more than 100 mm. per hour in 40 patients.

COMMENT

There are no hematological findings that are particularly diagnostic of bacterial endocarditis. We wish to emphasize the frequency with which anemia occurs in bacterial endocarditis and to stress the importance of anemia as a diagnostic point when some of the more familiar manifestations of the disease may be absent. The anemia may be of sufficient degree to simulate a primary hematological disorder, as illustrated by selected cases from this series.[5] If bacterial endocarditis is suspected clinically, the finding of phagocytic reticuloendothelial cells in the first drop of blood obtained from the ear constitutes strong confirmatory evidence, although this finding may be present in other conditions.

TABLE 3.—*Erythrocyte Counts in 191 Cases of Bacterial Endocarditis*

Cells per Cu. Mm., Millions	Males	Females	Total
5.0 or over	1	1	2
4.0-5.0	57	27	84
3.0-4.0	57	30	87
2.0-3.0	10	6	16
2.0 or less	2	0	2
Total	127	64	191

Anemia, which was present in 75% of patients in our series, was exceeded in frequency only by cardiac murmurs and positive blood cultures. The incidence of fever (75%) was the same as that of anemia. Anemia was present more frequently than evidence of embolization (61%), splenomegaly (44%), cardiac enlargement (37%), or clubbing of the fingers (17%). From these figures, it will be noted that the manifestations classically associated with bacterial endocarditis were present in a substantially smaller percentage of cases in our series than in previous reports in the literature, based on necropsy material. Several reasons for this difference are apparent. The manifestations in our patients were tabulated at an earlier stage of the disease. Furthermore, in a series of patients examined post mortem, evidence of embolization, splenomegaly, or cardiac enlargement that was not apparent clinically might be found. It is possible that antibiotic therapy, which many patients receive before the diagnosis is reached, may alter the clinical picture from that observed before the advent of antibiotic therapy. It is believed that our data, tabulated from clinical evaluation rather than from necropsy findings, represent more accurately the disease as seen by the clinician.

Some of the patients in this series were anemic before they came to the clinic and had been treated with iron, liver extract, or blood transfusions. This was true of at least 28 patients (14%). Despite the fact that a number of patients had received transfusions of whole blood a short time before coming to the clinic, no adjustment was made for the resultant transient elevation of hemoglobin and erythrocyte values in the foregoing analysis. Liver or iron therapy, of course, proved ineffective in correcting anemia of this type.

Many patients have been seen in recent years after they had received one or more short courses of antibiotic therapy for a febrile illness that later proved to be bacterial endocarditis. Inadequate antibiotic therapy may temporarily suppress the fever and render the blood stream sterile but does not eliminate the bacterial endocarditis. In the absence of fever, bacteremia, and the less common manifestations of bacterial endocarditis, a soft systolic murmur may not be considered significant. In view of these observations, anemia assumes greater importance in the diagnosis of bacterial endocarditis. It has long been said that if the patient has a cardiac murmur and an unexplained fever, bacterial endocarditis should be considered; to this might be added that if the patient has a cardiac murmur and an unexplained anemia, even without fever, bacterial endocarditis should be considered. Because of the few cases in which a murmur is transient, is first noted late in the course of the disease, or is not considered suggestive of a valvular lesion, it might also be said that if the patient has an unexplained fever and anemia, despite the absence of a cardiac murmur suggestive of valvular heart disease, bacterial endocarditis should be considered. The common practice of attributing a soft systolic murmur to anemia can be misleading in such cases. Detailed reports of cases from our series that illustrate these maxims are to be published.[5]

SUMMARY

In a series of 200 cases of bacterial endocarditis, anemia was found on initial examination in 150 patients (75%). Anemia was commoner than evidence of embolization (in 61%), splenomegaly (in 44%), cardiac enlargement (in 37%), or clubbing of the fingers (in 17%). Since inadequate antibiotic therapy may temporarily suppress the fever and bacteremia, the association of a cardiac murmur and an unexplained anemia should suggest the possibility of bacterial endocarditis. Because occasionally cardiac murmurs may be absent in bacterial endocarditis, the association of an unexplained fever and anemia should also suggest the possibility of this disease.

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HUMAN THROMBIN AS VEHICLE OF INFECTION IN HOMOLOGOUS SERUM HEPATITIS

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and
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The increasingly wide use of blood and blood products in medical practice has carried with it an increasing risk of homologous serum hepatitis (viral hepatitis B) among recipients of these materials. With the development, by Cohn and co-workers,[1] of techniques for the fractionation of the plasma proteins and with the widespread clinical use of the blood fractions thus produced, the question of whether these fractions might transmit homologous serum hepatitis has become a pressing one. The gamma globulin fraction, as prepared by ethyl alcohol (ethanol) precipitation, appears to be free of the agent of homologous serum hepatitis,[2] despite the fact that individual lots of gamma globulin may represent the pooled plasmas of thousands of donors.[3] It would appear that, in the preparation of this fraction by ethyl alcohol, the virus is inactivated, eliminated, or neutralized.[3] The albumin fraction prepared in this way has not been shown to contain the virus, and the albumin concentrates now in use are apparently free of it.[4] In any event, it has been demonstrated that this product can withstand the degree of heating required to inactivate the virus.[5] Homologous serum hepatitis has not been reported following the use of antihemophilic globulin, as prepared by the ethyl alcohol precipitation method.

The widespread acceptance of preparations of thrombin for use in local hemostasis is an indication of the value of these preparations in surgical procedures. The human thrombin used in the cases reported here was prepared from Cohn's "Fraction III-2" by the ethyl alcohol fractionation method. Prothrombin is first isolated and is subsequently activated to thrombin with thromboplastin, in the form of a placental extract. After Seitz filtration the thrombin is dried from the frozen state, usually in the containers in which it is to be distributed.

This report is concerned with the appearance of homologous serum hepatitis following the use of thrombin thus prepared from human plasma pools. Several hospitals in the New England area were affected. An outbreak in one of these has already been reported.[6] This was not substantiated by study of the material in volunteers. The present report concerns epidemiological observations on the epidemic in another of the affected hospitals, together with the results of studies in volunteers on two lots of the suspected thrombin. Discussions with the manufacturer revealed that there had been no unusual features in the production of the two lots under study. Both lots were processed at about the same time, and the placental extract used was the same in both cases. This extract was not used for any other lots, and none remained that could be examined for the presence of the agent of homologous serum hepatitis.

OUTBREAK IN MAINE GENERAL HOSPITAL

Since 1944 cases of viral hepatitis that could be attributed to previously transfused blood or plasma have been seen at this hospital with a frequency of at least one per year; the maximum number in any one year has been three. During 1950, however, and up to April, 1951, 18 cases of homologous serum hepatitis were observed. The available data indicated that the disease had been transmitted by some agent or technique used in the hospital. Of these 18 patients, 15 had undergone operations by the neurosurgical service and 3 by the general surgical service. These had been performed, in the latter three cases, during March and September, 1950, and, while all three had received either blood or plasma, none, as far as could be determined, received human thrombin. These three cases may be considered to reflect the endemic incidence of the disease at this institution.

Prior to this sharp rise in incidence of hepatitis, thrombin of bovine origin had been used at the hospital. Unfortunately, the exact date on which human thrombin tion of the polymorphonuclear leukocytes, left-shifted granulocytes, and myeloid immaturity were frequently seen. Reticuloendothelial cells were observed in 37 patients, with evidence of phagocytosis in 11 of these. In only a small percentage of cases was the first drop of blood from the ear lobe examined. On the basis of experience in recent years, it is reasonable to assume that a higher incidence of phagocytic reticuloendothelial cells would have been found if the examination had been performed on a smear prepared from the first drop of blood.

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Prior to this sharp rise in incidence of hepatitis, thrombin of bovine origin had been used at the hospital. Unfortunately, the exact date on which human thrombin was substituted for the bovine material is unknown. Shipments of human thrombin were received on May 24, 1950, June 27, 1950, and July 25, 1950; these were stored in the hospital pharmacy for an unknown period, until the supply of bovine thrombin in the operating room was exhausted. From the amounts of thrombin solution recorded on the anesthesia sheets, as contrasted with the amounts of bovine thrombin generally used, it appeared that all the neurosurgical patients in whom hepatitis developed had received human thrombin at the time of operation. The serial numbers of the thrombin solutions used were not recorded on the patients' charts. Between July 13, 1950 (the date of operation of the first patient in whom hepatitis later developed), and Jan. 8, 1951, 75 persons were operated on by the neurosurgical service. Of these, 48 received thrombin at operation and 27 received no thrombin. Among the former group, there were 15 cases diagnosed as homologous serum hepatitis (31%), while in the latter group no cases were found.

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It appears that, even after the human thrombin was introduced into the operating rooms, there were some operating days on which bovine thrombin was used in an effort to use up these stocks. These facts are reflected in a review of our records, revealing several instances in which patients operated on the same day received thrombin without hepatitis developing, but there is no instance in which two or more patients were operated on the same day and received thrombin, with subsequent development of hepatitis in only one. It is perhaps of some significance that two donors, whose blood had been administered to two patients in whom hepatitis later developed, had donated blood two and three times, respectively, within the previous two years, and hepatitis developed in none of these recipients.

TABLE 1.—*Outline of Cases of Homologous Serum Hepatitis*

Case	Diagnosis	Date of Surgery	Procedure	Blood Transfusion, Cc.	Onset of Hepatitis	Result	Incubation Period, Days
1	Ruptured lumbar disk	July 13, 1950	Laminotomy	0	Nov., 1950	Mild, recovered	109
2	Cord tumor suspect	Aug. 2, 1950	Laminectomy	500	Early Nov., 1950	Mild, recovered	90
3	Ruptured disk	July 27, 1950	Laminotomy	500	Nov. 2, 1950	Moderately severe, recovered	98
4	Traumatic transverse myelitis	Aug. 17, 1950	Exploratory laminectomy	750	Nov. 26, 1950	Mild, recovered	101
5	Ruptured disk	Aug. 18, 1950	Laminotomy	0	Dec. 14, 1950	Mild, recovered	119
6	Cord tumor	Aug. 28, 1950	Laminectomy	1,000	Dec. 14,1950	Moderately severe, recovered	109
7	Ruptured disk	Sept. 6, 1950	Laminotomy	0	Dec. 6, 1950	Mild, recovered	92
8	Skull fracture	Sept. 21, 1950	Craniotomy	0	Dec. 25, 1950	Mild, recovered	95
9	Meningioma	Nov. 1, 1950	Craniotomy	1,000	Dec. 25, 1950	Died, autopsy	54
10	Trigeminal neuralgia	Nov. 6, 1950	Retrogasserian neurectomy	500	March 29, 1951	Moderately severe, recovered	143
11	Reticulum cell sarcoma	Nov. 30, 1950	Laminectomy	500	March 21, 1951	Died, metastasis to liver	112
12	Ruptured disk	Nov. 30, 1950	Laminotomy	500	Jan. 24, 1951	Died, autopsy	55
13	Ruptured disk	Dec. 8, 1950	Laminotomy	0	March, 1951	Mild, recovered	82
14	Intracranial aneurysm	Dec. 11, 1950	Craniotomy	1,500	June 1, 1951	Mild, recovered	171
15	Ruptured disk	Jan. 8, 1951	Craniotomy	1,500	March 30, 1951	Mild, recovered	81

The cases in this outbreak are summarized in table 1. It will be seen that the incubation periods ranged from 54 to 171 days; the latter figure is somewhat long in terms of the usual incubation periods seen in this disease, but the case is included because the man had known exposure to the icterogenic thrombin solution and because the incubation period in his case, while slightly longer than usual, was not long enough to make it highly improbable that hepatitis was contracted at operation. The onset in most of the cases was insidious, and several patients were unaware of the hepatitis until it was discovered on follow-up physicial examination.

There were three fatalities in the series; one of these was apparently unrelated to the hepatitis. When this case is omitted, the fatality rate in this outbreak was 11%. It is of some interest that the two patients who died of hepatitis had the shortest incubation periods, 54 and 55 days, respectively. While this suggested a relationship between incubation period and severity of illness, this was not borne out by the cases with the longest incubation periods, since these were not especially mild in relation to cases with moderate incubation periods. There appeared to be no relation between severity of illness and the amount of thrombin solution used at operation.

VOLUNTEER STUDIES

Because of the close epidemiological correlation between the use of human thrombin and the occurrence of homologous serum hepatitis at the Maine General Hospital, and in view of the lack of specific tests or methods for isolating the virus or of any demonstrable susceptibility in animals, it was deemed advisable to test samples of the thrombin in volunteers. Two volunteer studies were done, using in experiment A a sample of the thrombin that had been used at the Maine General Hospital and in experiment B a sample from the other lot incriminated in the other New England hospitals affected but obtained directly from the manufacturer. Institutionalized healthy male volunteers, over 19 and below middle age, who had been screened on the basis of medical history, physical examination, and a battery of liver function tests, including urine bilirubin, urine urobilinogen, serum bilirubin, thymol turbidity, thymol flocculation, and cephalin flocculation, were used as experimental subjects. The samples of dried thrombin were dissolved in a solution of sterile isotonic sodium chloride to final concentrations of 500 units per cubic centimeter in experiment A and 1,000 units per cubic centimeter in experiment B. Each volunteer received a subcutaneous injection of solution representing 1,000 units of thrombin. These men were then given, at intervals of one week or less, physical examinations and complete batteries of liver function tests. They were admitted to the institution hospitals when jaundice or other signs and symptoms of hepatitis developed. All volunteers were under medical surveillance for four to five months after inoculation.

The results of the two experiments are summarized in table 2. It will be seen that in almost 50% of the total volunteer group hepatitis with jaundice developed, and that in an additional 20% hepatitis without jaundice developed. The illnesses, in general, were mild to moderate, with the exception of one man in experiment A. This person, 28 years of age, was severely ill for seven days and remained icteric, with anorexia and extreme fatigability, for two months. He was finally discharged as recovered about 80 days after onset. In the cases described as hepatitis without jaundice, one or more of the following conditions developed after the indicated incubation periods: malaise, anorexia, nausea, or abdominal pain. Abnormalities in serum bilirubin and serum flocculation tests, sufficient to establish the diagnosis of hepatitis, developed in all of these cases.

Table 2.—*Incidence of Homologous Serum Hepatitis in Volunteers After Subcutaneous Administration of 1,000 Units of Human Thrombin*

Experiment	Lot	Volunteers	Hepatitis With Jaundice	Incubation Period, Days	Hepatitis Without Jaundice	Incubation Period, Days	Total No. of Cases of Hepatitis
A	1	5	2	77, 77	2	43, 59	4
B	2	10	5	73, 76, 78, 89, 101	1	About 100	6
Total............		15	7		3		10

COMMENT

These findings confirm the presence of the agent of homologous serum hepatitis in the samples of thrombin tested. In addition, they provide conclusive evidence that the cases of homologous serum hepatitis at the Maine General Hospital were due to the batch of thrombin in use there in 1950. That these cases concerned primarily neurosurgical patients, when considered in relation to cases of patients with homologous serum hepatitis in the other hospitals who were also convalescent from neurosurgical procedures, is a reflection of the extent to which gelatin preparations soaked in thrombin solutions are used in such procedures, in contrast to their use in general surgery or in other divisions of general hospitals.

On the basis of the evidence available it is not possible to state whether the virus was originally present in the plasma used for the manufacture of this thrombin, and escaped through the fractionation process, or whether it was accidentally introduced through the placental extract. The fact that the same extract was used in the preparation of both virus-contaminated lots suggests that the placental extract may well have been the source of the icterogenic activity of this thrombin.

In the light of past experiences, reported and unreported, the indiscriminate use of blood fractions whose safety has not been demonstrated must be viewed with grave concern and their value weighed carefully against the calculated risk of inducing homologous serum hepatitis in recipients of such biological materials. It seems obvious that all commercial preparations containing human fluids or blood products must be considered as potential sources of homologous serum hepatitis until some method for demonstrating the presence or absence of the causative virus in them has been developed.

SUMMARY AND CONCLUSIONS

An outbreak of homologous serum hepatitis (viral hepatitis B) among patients of the neurosurgical service of a general hospital is reported. The relation of this epidemic to a batch of human thrombin used at the hospital is established both by epidemiological investigation and by demonstration of the agent of homologous serum hepatitis in the thrombin, through studies in volunteers. Evidence of the presence of this virus in another batch of human thrombin obtained directly from the manufacturer was obtained by means of volunteer studies, and possible mechanisms of contamination of these lots of thrombin are briefly considered.

Caution appears justified in the use of thrombin of human origin, as well as in the use of other human blood products. Bovine thrombin is the hemostatic agent of choice, in view of the lack of danger of homologous serum hepatitis following the use of this material.

1740 Bainbridge St. (46) (Dr. Stokes).

Pancreatic Pain.—Pancreatic pain is characterized by its posterior site, its exacerbation at night, and, when the patient is in the supine position, its relief when the trunk is flexed or when pressure is applied to the epigastrium, its persistence, and the requirement of narcotics for relief. The pain originates in an organ, which is peculiar with respect to its innervation. The pancreas spreads across such an area that it is innervated by both splanchnic nerves, but, in addition, somatic pathways may be involved because most of the anterior surface of the pancreas is covered by parietal peritoneum, which blends with the anterior layer of the transverse mesocolon. The localized perforation of an ulcer onto the pancreas produces a localized type of pain. More severe involvement of the pancreas, such as acute diffuse interstitial pancreatitis, may produce a localized pain; but, in addition, it may produce extensive necrosis of mesenteric fat which may cause the pain to spread to many other parts either caudad or cephalad. . . . The pain of carcinoma of the pancreas frequently depends on the degree of infiltration of the lesion. The pain patterns of pancreatic disease are thus dependent on several factors other than the site of the organ. In the lesion that is localized, as is focal pancreatitis, which may result from chronic perforation of a peptic ulcer, the pain is referable to the head or to the body of the pancreas. If the tail of the pancreas is involved by a malignant lesion of the stomach or by perforation of an ulcerating malignant lesion of the stomach, the pain may be referred to the left lower quadrant of the abdomen. In cases in which pancreatitis is localized in the head of the pancreas, the pain may be referred only to the right and posteriorly, and, because the organ is innervated bilaterally, diffuse disease involving head, body, and tail of the pancreas may produce an encircling or girdle type of pain.—L. A. Smith, M.D., Pain Patterns in Diseases of Upper Part of the Abdomen, *Proceedings of the Staff Meetings of the Mayo Clinic,* July 29, 1953.

EVACUATION AND CARE OF CASUALTIES IN AIRCRAFT

Brig. Gen. M. S. White

and

Major Robert W. Merkle, U. S. A. F., Langley Air Force Base, Va.

The most pressing problem facing the nation today is the maintenance of adequate defense forces for security within the national economy. In order to reach this goal, we must examine the usefulness of new ideas from all fields of activity. Throughout the ages, we have seen that both the strategy of warfare and the progress of civilization in peacetime are directly dependent on changes in transportation. With the growth of air transportation, we must orient ourselves to the impact this latest advance will have on the nation's medical problems in peace and war.

One of the most challenging developments in air transportation has been rotary wing aircraft, the helicopters. These aircraft, in addition to having some of the qualities of fixed wing aircraft, have the unique capability of taking off or landing from virtually any surface. Our vision must not be so limited, however, that we speak only of the helicopter in this connection. Research is now in progress that will make fixed wing aircraft capable of similar take-off and landing performance. In aviation, the impossible of yesterday may be the obsolete of tomorrow.

The helicopter's many uses by enthusiastic military and civilian agencies have been described in recent months by all news mediums. Now, as with all new drugs, equipment, or procedures in medicine, we must follow the first flush of enthusiasm with an appraisal of the actual capabilities of this new form of air carrier. We must determine how the helicopter can be used in the broad complex of medical care.

The basic problem of peacetime medical care is not different from that of war. This problem is the timely bringing together of the physician, the patient, and the means of treatment. In military and civilian groups, medical care revolves around large medical units located at centers of population. Progressively smaller units extend from these centers. At the periphery, in civilian medicine, the country physician practices alone in a sparsely settled community, without the facilities of a group clinic or a health center. In military medicine, his counterpart is the surgeon located at the fringe of battle or at an isolated station.

To analyze the influence of the helicopter on these systems, the difference between an air and a surface carrier must be clarified. In the past this has not been done successfully because of attempts to make direct comparison of the helicopter to the truck. Evaluation was based on the helicopter's performance over the same routes, at the same distances, and to and from the same places served by trucks. The fallacy of this is the failure to recognize that those distances and routes were first determined by the capabilities of the truck. To correct this, we must appreciate the distinct formula of aviation. An aircraft's capacity to travel great distances simplifies all the processes of a transportation system; it reduces the frequency of stops, the time in transit, and the size of control and administrative systems required. In addition, long-range aircraft can provide the means for processing or care while in transit, whether a perishable food, a television news film, or a human casualty is being transported. With these advantages, however, air transportation has been handicapped because of the need for open ground for terminals. The helicopter can meet the long-range carrier at these terminals and can transport cargo or passengers to and from the battle front or metropolitan center. This junctional operation makes possible fully effective air transportation in all the problems of movement and, in turn, related problems of medical care.

One example of movement in medical care is shown in figure 1, the system of casualty evacuation now used by the military services. From the battle line, casualties are moved by any available means to the first treatment site, usually the battalion aid station or a regimental collecting station. From these, evacuation is made by ground vehicle or helicopter to a clearing station close to, or combined with, a surgical hospital. There casualties have all the advantages of early lifesaving care close to the front lines. Those who can be returned to duty in a short time are usually retained at this site. Others are removed, as shown, to evacuation and field hospitals farther behind the front lines but still in the combat zone. The combat zone normally varies in depth from 50 to 100 miles. Patients requiring further care are carried by hospital trains, ground ambulances, or air transports to the communication zone. There treatment is continued in general hospitals, hospital centers, and convalescent centers.

This system has saved lives and conserved manpower because of the coordinated efforts of the medical and transportation personnel of all the military services. The advantages of good forward surgical care and rapid transportation have resulted in less than 5% of all wounded being discharged because of disability.[1] This record speaks for itself. The evacuation system was designed by Major Jonathan Letterman 100 years ago. It was developed on a pattern that had many way stops for treatment facilities. The capabilities of the transport carriers, the mule-drawn wagons and the primitive railways used during the Civil War, determined the location of treatment units. The principles of this evacuation system, requiring a balanced interrelationship of its component factors of patient, carrier, and treatment facilities, are still valid for any plan of evacuation.

Figure 2 shows the possibilities of complete use of the air carrier. In this system, casualties would receive first-aid treatment and then be evacuated to an emergency treatment site by helicopter or other light aircraft. Evacuation here is an extra service obtained from aircraft that serve the primary function of transporting blood, sup-

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Read before the Section on Military Medicine at the 102nd Annual Session of the American Medical Association, New York, June 3, 1953.

[1] Hays, S. B.: The Army Medical Service, U. S. Armed Forces M. J. 4: 167-174 (Feb.) 1953.

plies, personnel, or equipment to the front. After appropriate treatment, the majority of the patients would be transferred to larger aircraft, which also had brought troops or supplies forward. These air carriers would bypass the present medical care stations of the combat zone, depositing casualties at well-equipped and well-staffed hospitals in rear areas. In some instances, casualties could be evacuated directly from forward areas reached by certain types of assault aircraft, as shown by the top arrow in figure 2. Use of the helicopter-airliner combination would eliminate many of the medical facilities and supplementary means of transportation now used in the combat zone. This is especially important, because more than 70% of all the wounded in Korea require hospitalization outside of the combat zone.[1] The combat area would actually require only emergency treatment units and stand-by facilities that might be needed in the event of a catastrophe or the occasional breakdown that may occur in any movement system.

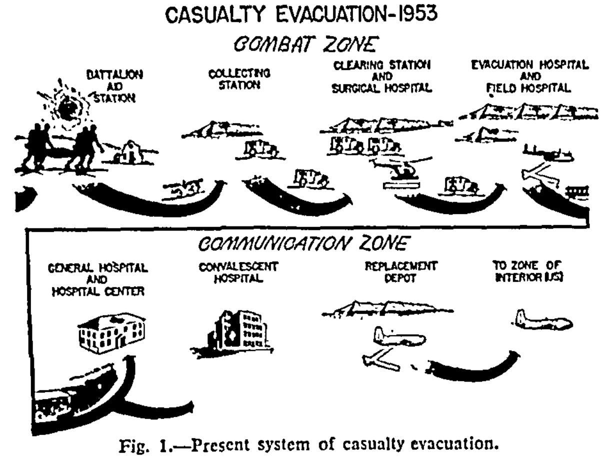

Fig. 1.—Present system of casualty evacuation.

If air transportation were developed to its maximum potential, even greater economies would be effected. Large airliners could be converted to aerial hospitals of 100 beds, instead of serving only as ambulance planes. As shown in figure 3, these hospitals would be complete, possessing wards, operating and treatment rooms, kitchens, laboratories, and morgues. Facilities of this type could be made available by use of light, portable equipment to convert the interior of the aircraft for return movement after the forward delivery of personnel or supplies. This combination of care and evacuation in aircraft, formerly performed in hospital ships, would permit almost all wounded to be returned directly to the United States without definitive hospitalization overseas. Time would be saved by elimination of the necessity to relocate civilian medical effort, and the cost of medical care at the front would be reduced. These savings would more than compensate for the manpower conservation supposedly accrued to a commander by retention of a great percentage of his wounded men in the battle area until they are well. Such retention would be unnecessary, as air transportation would still permit rapid return of fit personnel to combat from rear areas well below the time-space factors formerly used for surface transport.

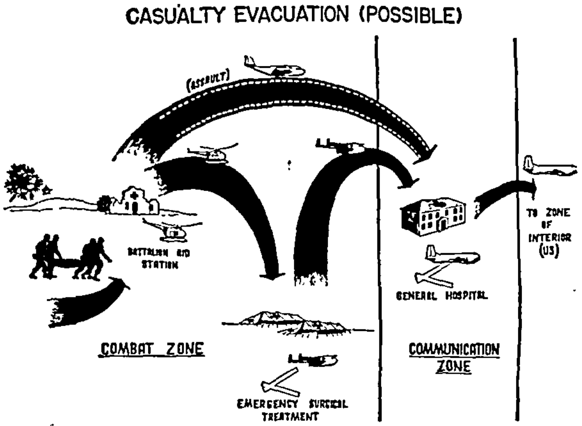

Fig. 2.—Proposed system of casualty evacuation.

Incorporation of this plan in our medical planning for the future presents the attractive possibility of practically no dislocation of the civilian medical economy in war. Civil and government facilities would be built and planned in peace for the loads of war. Physicians normally caring for the military and civilian population, as well as those readied for civilian defense needs, would continue at their routine duties. Between this remote possibility and present requirements, however, there is certainly some level at which an immediate goal can be established. The many details and specific decisions required for this are a task for the Department of Defense; nevertheless, these matters demand the attention of all physicians, for some of the same principles apply to the problems of peacetime medical care, especially with regard to sparsely settled areas. The junctional use of helicopters with airliners and distribution points provides the means of disseminating medical science and care to all areas of the nation. In addition, disasters, whether man-made or natural, affecting large groups of the population could be handled either by medical support to, or mass evacuation from, the involved areas.

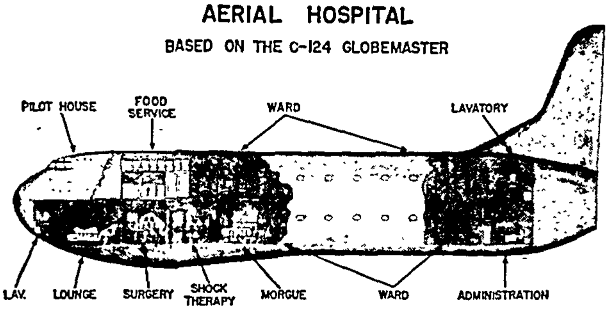

Fig. 3.—Cross section of hospital plane showing facilities for patient care in transit.

As physicians, in this period of international tension, it is appropriate that we consider these developments in air transportation in relation to future planning and air power in general. New techniques of warfare, if we cannot prevent war, will multiply our medical problems. Military medicine will be revolutionized. The success of any new evacuation technique will depend largely on the degree of air supremacy we are able to achieve. Without air supremacy it will be impracticable to have any system of evacuation, any system for combat, or even any war. If an aggressor nation should gain air superiority, it would be futile to plan evacuation of casualties by hospital train or ground ambulance. It would be futile to plan to move troops or patients over torn-up roads, bridges, and rail beds. Obviously, air power must be developed to such a degree that we as a nation can survive. As a by-product of the necessary growth of air power, increased air transportation by both helicopters and airliners can be applied to the problems of medical care. More important, its application to defense can benefit the national economy by permitting reduction of permanent military forces. In order to support small standing forces, it would only be necessary to have reserves of civilian militia that could be alerted for air transport to any trouble area. This, with air power's advantages of flexibility, surprise, and immense striking power would be a forceful deterrent to war and, to some extent, a guarantee for peace.

SUMMARY AND CONCLUSIONS

Transportation through the ages has changed the strategy of war and the activities of peace. The unique capability of helicopters, combined with larger air carriers, provides the means to furnish civilian and military medical care at great economies in personnel and facilities. Air transportation reduces the need in evacuation of wounded for many treatment units formerly required because of the limited facilities of surface carriers. Air transportation can also provide care in transit. The full acceptance of the helicopter-airliner combination would permit elimination of many medical facilities and supplementary means of transportation now used in combat zones. Additional savings to the nation's medical economy could be obtained by the use of aerial hospitals. There would be practically no relocation of civilian medical effort in war.

In peacetime the combined use of helicopters and airliners would facilitate medical care in all areas of the nation, as well as provide support in any disaster. The growth of air power would also aid total national economy by permitting a reduction in permanent military forces through development of a civilian militia reserve that could be easily transported by air.

Each of us, civilian or military man, has a personal responsibility to participate in planning for our country's future. We must properly use air power to improve medical care, save medical manpower, and advance the national economy, in peace or war.

NOTES ON A SERIES OF BRAIN TUMORS

Francis C. Grant, M.D., Philadelphia

The outcome of any surgical attack on an intracranial tumor depends on the cell type of the lesion and its position within the skull. Tumors composed of glial elements, the true brain tumors, have a much poorer prognosis than lesions with basic cell types that are fibroblastic, glandular, or vascular in origin. Tumors composed of these three types might well be termed intracranial rather than brain tumors, since their cell types are not those of the brain itself. Glial tumors tend to infiltrate the brain to a varying extent, and, for this reason, total extirpation is frequently impossible. Furthermore, since these tumors are invasive, the neurological deficits they produce are due to permanent brain damage and may persist even after the tumor has been extirpated. Nonglial tumors, on the other hand, do not invade the brain but force it to one side. A line of cleavage always exists between such lesions and the brain, total extirpation is possible, and, since neurological deficits are caused by brain compression rather than invasion, such deficits may completely disappear after removal of the tumor.

The position of a lesion largely determines the success or failure of surgical removal. Tumors of the convexities of the brain are more accessible than tumors in the subfrontal or subtentorial regions. A meningioma of the inner end of the sphenoid ridge, closely involved with the carotid artery, or a perineurial fibroblastoma in the cerebellopontine angle, adherent to the brain stem and extending upward through the incisura, (although both are tumors that may be totally extirpated when found in other regions) may become, because of its position, as impossible to remove completely as a glioblastic tumor of the convexity of the brain. On the other hand, a relatively benign glioblastic tumor involving the tip of the frontal, temporal, or occipital lobe may be entirely eradicated by removal of the lobe.

Finally, the stage at which diagnosis of a brain tumor is made may influence the result of surgery. Here again, the position of the lesion is important. Tumors that involve active areas of the brain such as the motor cortex, causing convulsions or paralysis; the optic radiations, producing visual field defects; or the cerebellar hemispheres, with changes in equilibrium; because of these symptoms, call prompt attention to the brain as the site of the lesion. But tumors in silent brain areas, such as the frontal lobes, the right temporal lobe, in the midline above or below the tentorium, may produce no clinical findings that can be related in any way to the brain. Intermittent headache and vomiting may be the only symptoms, and they can be due to many causes other than brain tumor. When visual loss, progressive headache, and uncontrollable vomiting appear, an intracranial lesion is first suspected. The neurosurgeon at times wonders why the attending physician was so late in reaching a diagnosis. The reason is, of course, that the antecedent symptoms were nonspecific. The alert physician naturally considers first the more common causes for a patient's complaints, and only when repeated and thorough examinations have ruled these out or when new symptoms appear suggesting an intracranial complication does he consider a less common lesion, such as a brain tumor. Consequently, brain tumors often are not diagnosed while they are still in a stage that might make total extirpation reasonably easy.

Read before the Section on Nervous and Mental Diseases at the 102nd Annual Session of the American Medical Association, New York, June 2, 1953.

In addition, as the tumor expands and causes increased intracranial pressure the general condition of the patient deteriorates until he is a poor surgical risk.

After it has been established that an intracranial mass lesion is the probable cause of a clinical picture, localization of the tumor is not difficult. With modern roentgenographic technique and ventriculography or arteriography, 95% of all intracranial mass lesions can be accurately localized.

Further, brain tumors can be divided into five groups; glial cell tumors, fibroblastic tumors, glandular tumors, which are preponderantly pituitary, vascular tumors, and a mixed group of metastatic, congenital, and other tumors of many different types that occur much less frequently than the four larger groups.

SURVEY OF CASES

A survey has been made of 1,733 cases of verified brain tumor seen on the neurosurgical service of the Hospital of the University of Pennsylvania from Jan. 1, 1930, to Jan. 1, 1950. These tumors have been classified in the five groups, according to their pathology, in an attempt to learn the prognosis and length of surgical survival in each group. In these 1,733 cases, 496 operative and 130 nonoperative deaths occurred, a case mortality of 36%. Among the 1,603 patients who had surgery, 1,926 operative procedures were performed, with 496 postoperative deaths, an operative mortality of 25%. As of Jan. 1, 1953, 409 patients, or 25%, were living; 47 had survived 20 years or more. In addition, 48 patients lived 10 years or over; 77 lived 5 to 10 years; and 573 survived surgery less than 5 years. Among the 48 patients who lived 10 years or more 3 finally died of recurrence, and among those who lived 5 to 10 years the tumor recurred fatally in 49 instances.

Review of the tumor types among the 534 patients who lived for five years or over shows clearly the importance of this factor in prognosis (see table). There were 203 fibroblastic tumors, the meningiomas and acoustic neuromas; 127 glandular lesions of pituitary origin; 84 gliomas, all of the slow-growing astrocytoma fibrillare or oligodendroglioma type; and 36 tumors of blood vessel origin. The remaining 84 tumors were divided among many subgroups. No patient with a glioblastoma multiforme or a malignant metastasis to the brain, from the lungs or elsewhere, survived over five years. Most of the patients died within three years.

Cell Type of Tumors in 534 Patients Who Survived Five Years or More After Surgery

	No. of Patients	%
Fibroblastic (meningiomas and acoustic neuromas)..	203	39
Glandular (pituitary adenomas)......................	127	22
Gliomatous (astrocytomas)	84	16
Vascular (hemangiomas)	36	7
Miscellaneous types	84	16

The astrocytomas total 348 cases, or 20% of the entire series. Of these, 218 were cerebral and 130, cerebellar. The division of this group according to position of the tumor above or below the tentorium is necessary because of the apparent difference in life expectancy with the two types. Among the 218 patients with cerebral astrocytomas, 27, or 12%, are still alive. Of the 130 with cerebellar astrocytomas, 45, or 35%, are alive in 1953.

Of the 45 living patients who had cerebellar astrocytomas, 36 had cystic and 9, solid tumors. Survival was prolonged when the tumor nodule was removed from the cyst wall. The nine solid tumors lay laterally in the cerebellar hemisphere, so that complete removal was possible. No patient with a solid glioma of the vermis cerebelli lived over five years. In two additional cases of cerebellar astrocytoma, one solid and one cystic, the patients survived for 11 years and died of recurrence. Of the 47 patients with cerebellar glioma who survived beyond 10 years, 41 were able to return to work.

In the 27 patients with cerebral astrocytomas who are still alive, the tumors were located as follows: nine temporal, eight parietal, six frontal, and four occipital; all but five were in the right cerebral hemisphere in right-handed patients. Extensive resections were done, with apparently complete removal in all but one case. In this instance there was a recurrence of a cystic astrocytoma in the right parietal region after 16 years. The patient was operated on again and has been well and working ever since. Five additional patients with cerebral glioma lived over 10 years and died of intercurrent disease. Five others lived over five years; four died from recurrence and one, in an accident. In this group of 37 patients who lived five years or more, 25 returned to work.

Glial tumors, the true brain tumors, have a much more unfavorable prognosis than lesions composed of nonglial elements, the intracranial tumors. A glioma must be favorably situated within the cranial cavity and must have a highly specialized and slow-growing cell type, such as an astrocyte or an oligodendroglia, as its basic component to make complete extirpation possible or to assure a reasonable life expectancy after partial removal. All the fibroblastic tumors, regardless of location, should be vigorously attacked and every reasonable risk taken to accomplish complete removal. The position of the tumor and its accessibility determine the outcome of surgery. Pituitary adenomas respond well to intracapsular, subtotal extirpation with roentgen ray therapy. Vascular tumors, so commonly found in the cerebellum and almost always cystic, can be cured if the tumor nodule in the cyst wall is removed.

SUMMARY AND CONCLUSIONS

Results of intracranial surgery for tumors compare favorably with results of tumor removal in general. In this group of 1,733 patients, 534, or 30% lived five years or more after operation. Of the 1,733 patients, 626 died either before or shortly after operation, leaving 1,107 patients who could be followed up. In this group, 573 had lesions that were either rapidly recurring gliomas or metastatic carcinoma; none of these patients lived over five years, few over three years. If this unfavorable group is eliminated, 534 cases of tumors with better prognosis remain. All of these 534 patients, or roughly 49% of the 1,107 patients who were followed, lived five years or more, and 409 of them, or 35%, are still living, 4 to 23 years after surgery.

The skill and experience of the surgeon are vital in removal of a brain tumor; however, all his skill and experience are of no avail unless a tumor is relatively benign and is in an accessible position.

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CLINICAL EVALUATION OF DEXTRAN AS A PLASMA VOLUME EXPANDER

Harry W. Bowman, M.D., Bethlehem, Pa.

At the termination of World War II, the advent of atomic destruction alerted the medical profession to the great need for emergency stockpiling of plasma and plasma substitutes. At present, three plasma substitutes are widely used, dextran, polyvinylpyrrolidone, and oxypolygelatin. "Plasma volume expander" is the accepted name for these materials, since there is no true substitute for plasma or whole blood. Plasma expanders may be divided into four groups: (1) Blood derivatives: albumin, plasma, and modified globin; (2) modified proteins: gelatin and oxypolygelatin; (3) polymerized carbohydrates: dextran; (4) plastics: polyvinylpyrrolidone.[1a]

My clinical experience with plasma volume expanders has been limited almost entirely to the evaluation of dextran. I have had very little experience with polyvinylpyrrolidone, and I have not used oxypolygelatin in any of my studies.

METHOD AND MATERIALS

I have administered more than 500 infusions of dextran (Plavolex), in 6% isotonic sodium chloride solution during an 18 month period. The first 76 infusions were studied under the protocol established by the National Research Council. Plasma volume, blood volume, hematocrit, and excretion studies were done on each of the original 76 patients before and after administration of 500 cc. of dextran solution. The temperature, pulse rate, respiratory rate, blood pressure, skin reaction and temperature, and orientation of each patient were recorded during all dextran infusions. Unfavorable reactions occurred in two patients. These were characterized by itching, mild urticaria, severe chills, and a temperature rise to 103 F. These symptoms are typical of reactions to dextran but the reactions are easily controlled with the use of antipyretics and sedation. All of my original clinical studies were done on patients who were not receiving any drug therapy or who had completely recovered from anesthesia. The age group ranged from 18 to 60, and no patient had a chronic or an acute infection.

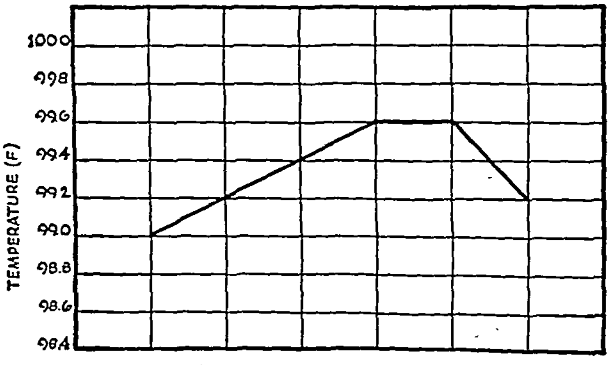

Fig. 1.—Average oral temperature among 76 patients before and during the 24 hour period following infusion of dextran solution.

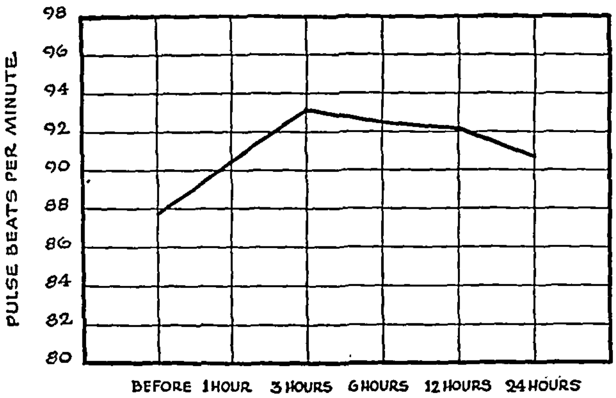

Fig. 2.—Average pulse rate among 76 patients before and during the 24 hour period following infusion of dextran solution.

Dextran is a polysaccharide, or polymer of glucose, manufactured from sucrose by a fermentation process. The coccus Leuconostoc mesenteroides produces an exocellular enzyme, which polymerizes glucose into a polysaccharide, forming the end product dextran. The molecular weight of dextran varies from 50,000 to 100,000, averaging 65,000 to 70,000, and approximates that of human plasma.

CLINICAL EFFECTS OF DEXTRAN INFUSION

Figure 1 shows that the average oral temperature rise after intravenous administration of dextran is not more than 0.8 F. Part of the temperature rise is probably due to postsurgical tissue reaction. The average pulse rate ranged from 86 to 94 beats per minute, which can be considered within normal limits. Figure 2 shows the radial pulse variations.

Other investigators [1] have shown the average increase in cardiac output after infusion of 500 cc. of dextran to be 30%. The cardiac stroke volume, peripheral venous pressure, right auricular pressure, and pulmonary capillary pressure are increased. A change of this nature is to be expected after a sudden increase in plasma volume. Figure 3 shows the average blood pressure changes after a single infusion of dextran. A rise in systolic pressure and a corresponding decrease in diastolic pressure reached the maximum at the third hour after administration of dextran. The clinical findings represented graphically correspond with physiological changes in cardiac activity.

Plasma volume and total blood volume studies have been of great interest. Figure 4 illustrates the average increase in plasma volume and in blood volume after an infusion of 500 cc. of dextran. The average plasma volume increase was 450 cc., and the average blood volume

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Director of Anesthesiology, St. Luke's Hospital.

Read before the Section on Anesthesiology at the 102nd Annual Session of the American Medical Association, New York, June 3, 1953.

The dextran (Plavolex) used in this study was furnished by the Chemical Division of R. K. Laros Company, Bethlehem, Pa., and by Wyeth Laboratories, Philadelphia. The modified human globin was furnished by Sharp & Dohme, Inc., West Point, Pa.

[1a] Weiss, W. A.: Plasma Volume Expanders, personal communication to the author.

[1] Symposium on Plasma Volume Expanders in the Treatment of Shock, A. M. A. Arch. Surg. 63: 718-749 (Dec.) 1951.

increase was 550 cc. The response to dextran, as indicated by these figures, has been most gratifying to both the surgeon and the anesthesiologist, particularly in the treatment of burns, traumatic shock, and surgical shock.

Figure 5 shows the average concentration of dextran in the plasma before and at intervals after infusion. A rapid rise of the dextran level to 750 mg. per 100 cc. is noted in the first hour after infusion of one unit. At the end of the first hour the level begins to fall gradually and continues to fall during the next 24 hours. This graphic representation illustrates dextran's valuable prolonged effect in maintaining plasma volume increase and its value in the emergency fluid treatment of shock.

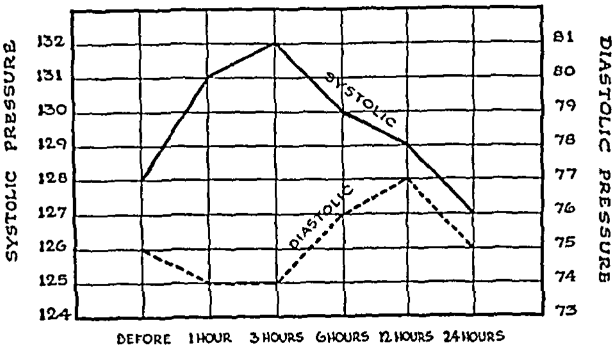

Fig. 3.—Average systolic and diastolic blood pressures among 76 patients before and during the 24 hour period following infusion of dextran solution.

Infusion of dextran was always preceded and followed by hematocrit studies. Figure 6 shows the hemodilution effect of dextran. The hematocrit fell from a normal level to a level of 39.2% during the first hour and gradually returned toward the normal level in the ensuing 24 hours. Although the drop in hematocrit was not serious, I believe this response is an indication that the use of whole blood is essential in traumatic or surgical shock.

Data released by the National Research Council indicate that in animals 93% of intravenously administered dextran is accounted for in the urine and in expired air within a 10 day period; 7% is probably metabolized in the body.[2] I believe that dextran is excreted and metabolized in humans in a corresponding manner. Excretion of 32.9% over a 24 hour period has occurred in my series. The excretion levels fall well within the limits required of a satisfactory plasma volume expander, as indicated in figure 7.

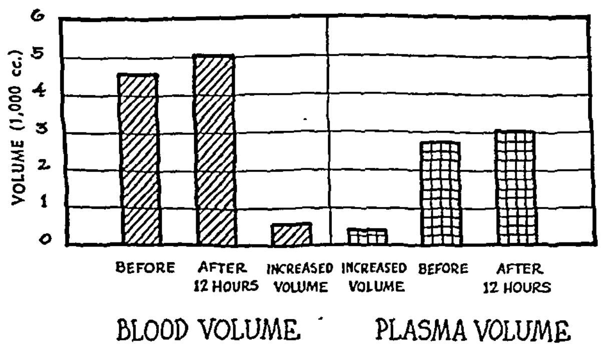

Fig. 4.—Average blood and plasma volumes among 76 patients before and 12 hours after infusion of dextran solution.

COMPARISON WITH OTHER PLASMA VOLUME EXPANDERS

My experience with polyvinylpyrrolidone has been limited; however, the clinical results from its use compare favorably with results from the use of dextran. Histological changes in certain body tissues are known to occur after infusion of polyvinylpyrrolidone, but I have not noted such changes after use of dextran. I have been impressed also by the evidence that dextran has interfered in no way with blood typing or cross matching in over 500 infusions. Dextran appears to be superior to oxypolygelatin, serum albumin, and plasma in its effect on plasma volume expansion. The table shows the comparative effects on plasma volume expansion of the four materials. The figures point to a prolonged satisfactory response with dextran. The remaining three substances fall short in the production of prolonged effect on plasma volume.

During the past six months, I have been successful in the clinical use of dextran combined with modified human globin. Modified human globin is the protein extract of red blood cells. It is packaged in the dehydrated form and is not readily soluble in dextran; however, it is soluble in 5% dextrose and water, and the resultant solution has the appearance of plasma. I have administered the globin preparation simultaneously with dextran, with good results. My work with this combination has been limited, and I cannot report on a convincing series of patients, but I can state that the patients have been safely supplied with a protein-rich solution plus a plasma volume increase. This form of intravenous therapy is extremely valuable in the treatment of burns, because of the osmotic and oncotic pressure effect and the protein intake. I have noted improved postoperative wound healing, particularly in the emaciated patient. This experience points to the possibly great therapeutic value of modified human globin and dextran in the treatment of the severely burned patient as well as the emaciated, undernourished patient and possibly in the postoperative care of the surgically treated patient. More extensive studies are being carried out at present with a combination of these two materials.

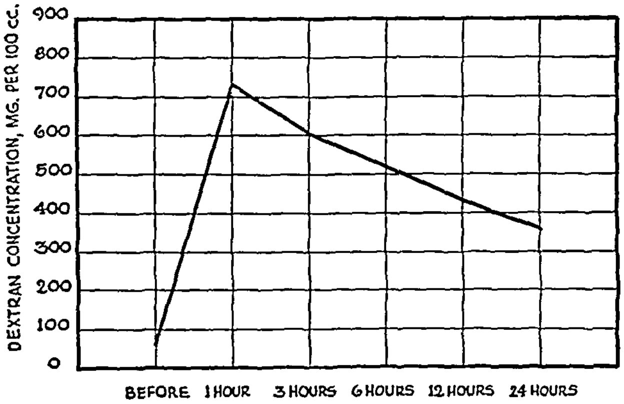

Fig. 5.—Average plasma concentration of dextran among 76 patients before and during the 24 hour period following dextran infusion.

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[2] Hellman: National Research Council News Report, 1951. Hellman, and Becker: National Research Council News Report, February and April, 1952. National Research Council News Report, August, 1951.

COMMENT

I believe that dextran meets all the clinical requirements of a satisfactory plasma volume expander for the following reasons. 1. It rarely produces untoward reactions. 2. It does not cause antigenicity. 3. It is not retained for any significant period in the body and does not cause histological changes within the tissues. 4. It does not interfere with blood typing and cross matching. 5. It produces satisfactory blood volume expansion, as indicated by plasma volume and blood volume studies. 6. It is immediately available for administration and can be stored at any temperature above the freezing point.

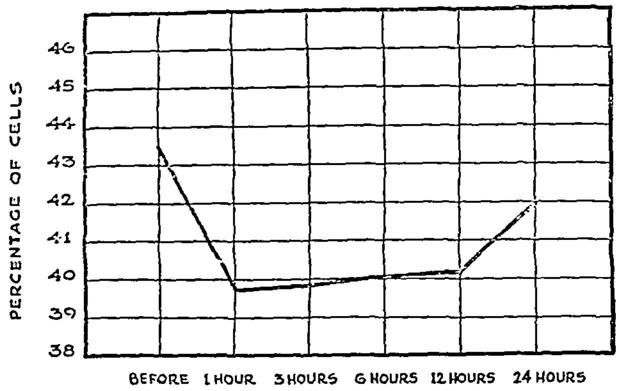

Fig. 6.—Average hematocrit reading among 76 patients before and during the 24 hour period following infusion of dextran solution.

*Comparison of Blood Volume Expansion Produced by Dextran, Gelatin, Serum Albumin, and Plasma**

Period After Infusion		Average Increase in Blood Volume, Cc.			
Hr.	Min.	Dextran	Gelatin	Serum Albumin	Plasma
..	15	1,000	960	827	830
..	45	1,100	751	972	1,173
1	15	900	1,118	526	657
2	30	1,000	1,113	573	649
3	45	1,100	704	908	601
5	..	1,350	521	1,183	281
6	..	1,275	647	737	111
8	..	1,100	440	1,342	521
20	..	275	152	236	— 133

* Reproduced with the permission of Dr. G. M. Hyde, Donner Research Laboratories, University of Southern California, Los Angeles.

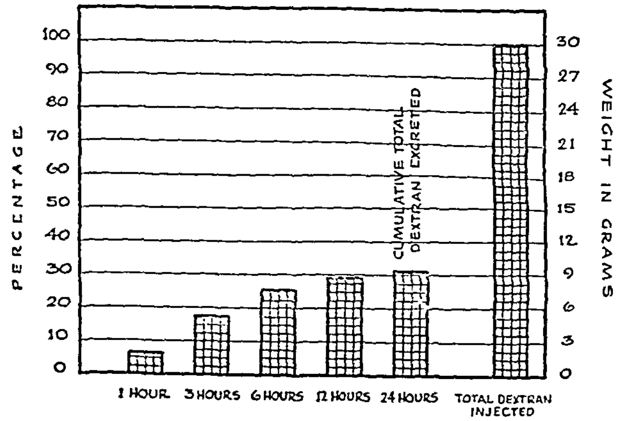

Fig. 7.—Average dextran excretion among 76 patients over the 24 hour period following its injection.

Space does not permit a detailed discussion of the many dramatic results obtained with the use of dextran in treatment for burns, traumatic shock, anuria, cerebral edema, postsurgical edema of the gastrointestinal tract, and pulmonary edema. I believe, however, that concentrations of 10% and 20% salt-free dextran will be of greater value, particularly in the treatment of burns and edema.

SUMMARY AND CONCLUSIONS

The results of clinical and laboratory studies of dextran are reported and prove, I believe, the great value of this material as a plasma volume expander. Studies in progress on the combined use of dextran and modified human globin are mentioned. I do not believe that polyvinylpyrrolidone or oxypolygelatin can be overlooked as potentially satisfactory plasma expanders, although at present their clinical administration is attended by some difficulty. Finally, plasma volume expanders are not, and probably never will be, satisfactory substitutes for whole blood. Whole blood is essential for the maintenance of normal human physiological function.

1828 Homestead Ave.

CLINICAL NOTES

NALORPHINE (NALLINE) ANTAGONISM TO RACEMORPHAN (DROMORAN) INTOXICATION

Edward F. Domino, M.D.
Edward W. Pelikan, M.D.
and
Eugene F. Traut, M.D., Chicago

Experiments with laboratory animals indicate that nalorphine (Nalline) is effective in antagonizing most of the effects of morphine,[1] codeine, dihydromorphinone (Dilaudid), metopon, methadone,[2] and meperidine (Demerol).[3] Successful clinical use of nalorphine to antagonize the respiratory depression caused by morphine, dihydromorphinone, methadone, and meperidine has been reported.[4] Chase, Boyd, and Andrews have

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Associate Clinical Professor of Medicine (Dr. Traut) and instructors in pharmacology (Drs. Domino and Pelikan), University of Illinois College of Medicine, and from the Presbyterian Hospital.

[1] (*a*) Hart, E. R.: N-Allyl-Norcodeine and N-Allyl-Normorphine: Two Antagonists to Morphine, J. Pharmacol. & Exper. Therap. **72**: 19 (May) 1941. (*b*) Unna, K.: Antagonistic Effect of *N*-Allyl-Normorphine upon Morphine, ibid. **79**: 27-31 (Sept.) 1943. (*c*) Hart, E. R.: Further Observations on the Antagonistic Actions of N-Allyl-Normorphine against Morphine, abstracted, Fed. Proc. **2**: 82 (March) 1943. (*d*) Hart, E. R., and McCawley, E. L.: The Pharmacology of N-Allylnormorphine as Compared with Morphine, J. Pharmacol. & Exper. Therap. **82**: 339-348 (Dec.) 1944. (*e*) Smith, C. C.; Lehman, E. G., and Gilfillan, J. L.: Antagonistic Action of N-Allyl-Normorphine upon the Analgetic and Toxic Effects of Morphine, Methadone Derivatives and Isonipecaine, abstracted, Fed. Proc. **10**:335-336 (March) 1951.

[2] Smith and others.[1e] Huggins, R. A.; Glass, W. G., and Bryan, A. R.: Protective Action of N-Allyl-Normorphine Against Respiratory Depression Produced by Some Compounds Related to Morphine, Proc. Soc. Exper. Biol. & Med. **75**: 540-541 (Nov.) 1950.

[3] Smith and others.[1e] Radoff, L. M., and Huggins, S. E.: Protective Action of N-Allylnormorphine Against Demerol, Proc. Soc. Exper. Biol. & Med. **78**: 879-880 (Dec.) 1951.

[4] Eckenhoff, J. E.; Elder, J. D., Jr., and King, B. D.: N-Allyl-Normorphine in the Treatment of Morphine or Demerol Narcosis, Am. J. M. Sc. **223**: 191-197 (Feb.) 1952. Eckenhoff, J. E.; Hoffman, G. L., and Dripps, R. D.: N-Allyl-Normorphine: Antagonist to the Opiates, Anesthesiology **13**: 242-251 (May) 1952. Fraser, H. F.; Wikler, A.; Eisenman, A. J., and Isbell, H.: Use of N-Allylnormorphine in Treatment of Methadone Poisoning in Man, J. A. M. A. **148**: 1205-1207 (April 5) 1952.

reported successful treatment of dihydromorphinone and racemorphan poisoning with nalorphine.[5] We have had the opportunity to confirm the dramatic efficacy of nalorphine in another case of racemorphan intoxication. The unusual circumstances involved in this case permit the drawing of certain conclusions concerning the pharmacological activity of both racemorphan and nalorphine.

REPORT OF A CASE

A 54-year-old white woman entered the hospital in December, 1952, because of generalized carcinomatosis. Six months previously she had been treated for carcinoma of the uterus with radium implants and subsequent total hysterectomy. For a month prior to admission she had been bedridden and had complained of severe pain in the back and left hip, with "knife-like" radiation of pain down both legs. Physical examination on admission showed only severe muscular atrophy in both legs, which were held flexed and adducted, and a Gonda reflex on the left. Roentgenologic examination revealed a pathological fracture of the left femur, with bone changes suggestive of metastases in the inferior ramus of the right pubis. Since there was no papilledema, a lumbar puncture was performed, the results of which were within normal limits, except for an elevated spinal fluid pressure (340 mm. of cerebrospinal fluid). Results of routine hematological and urine analyses were within normal limits.

Five milligrams of racemorphan was given subcutaneously at 9 p. m. to control pain. Throughout the night the patient rested well but was slightly disoriented. Another lumbar puncture was done the following morning, which showed a pressure of 290 mm. of cerebrospinal fluid. At 1:30 p. m. on the second day, the patient again complained of hip and leg pain and was given another 5 mg. of racemorphan subcutaneously. She promptly went to sleep. Two hours later it was noted that she could not be aroused and had Biot respiration at a rate of nine per minute. She continued to be semicomatose for 10 hours. At 12:15 a. m., she responded only to painful stimuli. The left patellar reflex was diminished, but a Gonda reflex was present on the left. The eyes were immobile, and the pupils were greatly dilated and unresponsive to light; the corneal reflex was barely perceptible. Biot respiration continued at a rate of nine per minute, and the patient had periods of apnea lasting 15 seconds.

Five milligrams of nalorphine was given intramuscularly at 12:25 a. m. By 12:30 a. m., the depth of respiration had increased, and the periods of apnea were shortened to 10 seconds. At 12:40 a. m., respiration was regular and of normal amplitude, with a rate of 14 to 16 per minute. The patient opened her eyes at 1 a. m. and said spontaneously, "I'm waking up now." Fifteen minutes later respiration was regular at 18 per minute. The corneal reflex was present, and the pupils reacted sluggishly to light. The patient was alert and rational. Eighty minutes after the administration of nalorphine the patient complained of severe pain.

Results of liver and kidney function tests were as follows: serum alkaline phosphatase level, 13.2 units per 100 cc.; sulfobromophthalein (Bromsulphalein) sodium test, 45.6% retention after 45 minutes; nonprotein nitrogen level, 34 mg. per 100 cc. The urine had a specific gravity of 1.024 and contained neither protein nor reducing substances. A test for urinary urobilinogen (Watson qualitative method) was positive in 1:100 dilution.

Three days later 2.5 mg. of racemorphan administered subcutaneously caused the patient to become generally depressed; Biot respiration returned at a rate of 10 to 12 per minute, with 20 second periods of apnea. The administration of 2.5 mg. of nalorphine intramuscularly reduced the duration of apnea from 20 to 17 seconds and increased the depth of respiration. It also made the patient more alert and mindful of her pain. Subsequently, the patient's pain was adequately controlled without ill effects by administration occasionally of small doses (4 mg.) of morphine. The possibility that the hypodermic injections had a suggestive effect was ruled out by injections of sterile saline solution, which were totally ineffective.

COMMENT

Signs of severe narcotic poisoning (decreased respiratory rate and altered respiratory rhythm, depressed corneal reflexes, and fixed and dilated pupils) persisted in this patient for at least 12 hours after the administration of racemorphan (two doses of 5 mg. each given 15 hours apart). Such a prolonged and cumulative action is best explained as the result of a diminished rate of detoxification of racemorphan. The apparently normal kidney function and severe hepatic damage present in this patient suggest that the liver is the major site of detoxification of racemorphan, as it is for morphine.[6] Thus, racemorphan, like opium or its derivatives, should be used with caution in persons with diminished liver function. The degree to which probable brain damage and an elevated cerebrospinal fluid pressure enhanced the action of racemorphan is difficult to evaluate. Nevertheless, the results observed emphasize the need for caution in administration of narcotics to patients with increased intracranial pressure.

In the case reported, nalorphine promptly antagonized several effects of racemorphan. Respiratory depression was reversed within 15 minutes after the intramuscular injection of 5 mg. of nalorphine, as evidenced by an increased depth and rate of respiration and the conversion of respiration from Biot to normal regular rhythm. The analgesic and general depressant effects of racemorphan were also counteracted. Presumably, analgesia, respiratory depression, and dulling of consciousness are not manifestations of fundamentally different pharmacodynamic actions of racemorphan.

SUMMARY AND CONCLUSIONS

A patient with racemorphan (Dromoran) poisoning successfully treated with nalorphine (Nalline) is described. Of all the observed effects of racemorphan, antagonism to respiratory depression occurred most quickly. Racemorphan should be used with caution in patients with severe liver damage, since the liver is probably the major site of detoxification of this substance.

ADDENDUM

After this manuscript had been prepared for publication, Bornstein and co-workers [7] reported two more cases of successful treatment of racemorphan poisoning with nalorphine.

1853 W. Polk St. (12) (Dr. Domino).

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[5] Chase, H. F.; Boyd, R. S., and Andrews, P. M.: N-Allylnormorphine in Treatment of Dihydromorphinone and Methorphinan Overdosage, J. A. M. A. **150**: 1103-1104 (Nov. 15) 1952.

[6] Goodman, L., and Gilman, A.: The Pharmacological Basis of Therapeutics: A Textbook of Pharmacology, Toxicology and Therapeutics for Physicians and Medical Students, New York, The Macmillan Company, 1941, p. 202.

[7] Bornstein, M.; Yorburg, L., and Johnston, B.: N-Allylnormorphine in Treatment of Methorphinan (Dromoran®) Hydrobromide Poisoning, J. A. M. A. **151**: 908-910 (March 14) 1953.

Use of Radioisotopes.—There are about 10 radioisotopes which can be produced with sufficiently high specific activity not only to supplant radium but to challenge the pre-eminence of therapeutic x-ray equipment. Three of these isotopes, Cesium^{137}, Europium^{152}, and Cobalt^{60}, can be designed into machines which have many advantages over an electrical device of similar energy.—M. Brucer, M.D., Encouraging and Discouraging Research with Therapeutic Radioisotopes, *Journal of Kentucky State Medical Association,* June, 1953.

CYCLIC NEUTROPENIA

REPORT OF A CASE TREATED BY SPLENECTOMY

William D. Coventry, M.D., Duluth, Minn.

Cyclic neutropenia, or periodic neutropenia as Reimann [1] has recently termed it, is a rare hematological disorder of unknown etiology and is characterized by severe neutropenia or agranulocytosis recurring at approximately 21 day intervals. The neutropenic phase, which lasts for from five to eight days, is usually accompanied by mild fever and localized, superficial infections of the skin or mucous membranes. Sometimes the infection is so severe that it simulates acute agranulocytosis, while, at other times, infection may be minimal or even absent. These symptoms always subside as the neutrophils rise to normal levels during the recovery periods. This sequence of events continues for years without impairing the general health of the person. Accurate recognition of this type of neutropenia is of great importance because it implies a favorable prognosis and because the disorder must be differentiated from acute and chronic types of neutropenia, both idiopathic and secondary, in which a serious outcome may be expected.

Leale,[2] in 1910, first described this disorder in a 3½-year-old infant. In 1946, Vahlquist [3] reviewed the literature and described the disorder in one of his own patients, an infant. He suggested that the disease be considered an entity. This was also the opinion of Reimann,[1] who, in 1949, collected 16 cases from the literature and suggested that this entity be included in his group of periodic diseases. Recently both Sandella [4] and Monto [5] have described this disorder in an older person. The few deaths so far reported have been from unrelated causes. In order to elucidate further the clinical features of this rare and benign type of neutropenia, another case, treated by splenectomy, is described.

REPORT OF A CASE

A married girl, 16 years of age, was first seen in October, 1948, and remained under observation until October, 1952. In October, 1948, she was admitted to the dermatology service of the hospital because, for the preceding four days, she had had a severe furunculosis that involved the buttocks and groin and that was accompanied by fever and chills. Three weeks before she had delivered a normal male infant. No leukocyte counts were obtained at that time, but, during pregnancy, several blood cell counts had shown neutropenia. She recalled that during pregnancy she had not had any skin or mucous membrane infections but that before, for as long as she could remember, she had had repeated superficial infections of the skin and mouth.

Physical examination revealed a well-nourished and well-developed young girl who showed no abnormality except for mild gingivitis and several large furuncles of the buttocks and groin. Multiple scars from previous similar infections were also present on the buttocks. The temperature was 104 F. The hemoglobin level was 9.7 gm. per 100 cc.; erythrocytes, 3,400,000; and leukocytes, 3,850 per cubic millimeter, with 11% neutrophils, 2% eosinophils, 1% basophils, 26% monocytes, and 60% lymphocytes. The number of platelets appeared to be increased on the blood film. Urinalysis was normal. Blood cultures showed no growth. A chest film was normal. There was a strongly positive reaction to intradermal Staphylococcus toxoid in 1:100 solution. Treatment with Staphylococcus toxoid, transfusions, and antibiotics was followed by a prompt drop in temperature and rapid healing of all lesions. Three days after admission, the number of neutrophils had reached 38%, and, at the time of discharge from the hospital on the 11th day, there were 6,050 leukocytes, with 60% neutrophils, 1% eosinophils, no basophils, 35% lymphocytes, and 4% monocytes, a normal distribution.

Sternal marrow aspiration was performed after the blood cell values had returned to normal. The myelogram (cell type percentage in 400 nucleated cells) revealed myeloblasts, 1.25%; leukoblasts, 1%; promyelocytes, 1.25%; myelocytes (neutrophils), 8%; myelocytes (eosinophils), 0.75%; myelocytes (basophils), 0.5%; metamyelocytes, 15.75%; neutrophils, 25%; eosinophils, 3.5%; basophils, 2.25%; lymphocytes, 19%; monocytes, 5%; erythroblasts, 0.25%; normoblasts (basophils), 2.5%; and normoblasts, 16.75%. Megakaryocytes were not estimated. This was considered to be a normal marrow specimen and corresponds to the figures given by Fullerton and Duguid [6] for the remission phase.

The patient's medical history was obtained from her family physician. Records made at the time of her birth on April 25, 1932, showed that parturition was normal. No blood cell counts were obtained at that time. In March, 1933, when the patient was one year old, otitis media with mastoiditis, multiple furuncles, and anal fissure occurred. Mastoidectomy, adenoidectomy, and cauterization of the fissure were done with uncomplicated recovery. Neutropenia and anemia were first noted during this illness.

Between March, 1933, and October, 1948, the girl was hospitalized on many occasions for treatment of recurrent infections. Ulcerative stomatitis and gingivitis were first noted in August, 1933, and this condition recurred continually throughout her life; several dental extractions were done in an attempt to cure it. During this period, at one time or another, furuncles or abscesses involving the fingers, toes, axillas, buttocks, elbows, conjunctivas, and ears were present. These infections always healed without serious complications. Laboratory records showed that anemia, leukopenia, and neutropenia occurred at various times. No detailed serial blood studies were performed during this 15 year period. The girl's father, mother, and two siblings had always been in good health. None had a history of infections or neutropenia. The only history of allergy in the patient or her family was urticaria on one occasion following a penicillin injection. No time relationship existed between the menses and the phase of neutropenia. The patient was well adjusted to her illness and showed no neurotic tendencies.

She was admitted to the hospital again in February, 1949, because of a small ulcer on the left buccal mucosa and pyoderma on the right thumb of six days' duration. The temperature was 100.6 F. The hemoglobin level was 13.5 gm. per 100 cc.; erythrocytes, 4,100,000; and leukocytes, 5,300 per cubic millimeter, with neutrophils, 42%; eosinophils, 20%; basophils, 1%; lymphocytes, 31%; and monocytes, 6%. Findings on physical examination were normal except for the local lesions. The spleen was not palpable. There was no enlargement of lymph nodes. Recovery was rapid with antibiotic and local treatment. One week after the patient left the hospital, the leukocyte count was 5,600 per cubic millimeter, and the differential count was normal.

A third hospital admission was necessary in April, 1949, because of purulent gingivitis, with severe regional lymphad-

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From the Department of Internal Medicine, the Duluth Clinic.

Drs. F. T. Becker, M. G. Fredricks, H. A. Sincock, and K. W. Teich assisted in obtaining data on the patient described.

1. Reimann, H., and de Berardinis, C. T.: Periodic (Cyclic) Neutropenia, an Entity: A Collection of 16 Cases, Blood 4: 1109-1116 (Oct.) 1949.
2. Leale, M.: Recurrent Furunculosis in an Infant Showing an Unusual Blood Picture, J. A. M. A. 54: 1854-1855 (June 4) 1910.
3. Vahlquist, B.: Cyclic Agranulocytosis: Report of a Case with a Short Survey of the Disease, Acta med. scandinav., supp. 170, pp. 531-542, 1946.
4. Sandella, J. F.: Cyclic Acute Agranulocytosis: Report of a Case with Improvement after Splenectomy, Ann. Int. Med. 35: 1365-1371 (Dec.) 1951.
5. Monto, R. W.; Shafer, H. C.; Brenna, M. J., and Rebuck, J. W.: Periodic Neutropenia Treated by Adrenocorticotropic Hormone and Splenectomy, New England J. Med. 246: 893-896 (June 5) 1952.
6. Fullerton, H. W., and Duguid, H. L. D.: A Case of Cyclical Agranulocytosis with Marked Improvement Following Splenectomy, Blood 4: 269-277 (March) 1949.

enitis of five days' duration. The temperature was 102 F. The hemoglobin level was 11 gm. per 100 cc.; erythrocytes, 4,600,000; and leukocytes, 5,000 per cubic millimeter, with neutrophils, 10%, eosinophils, 5%, lymphocytes, 45%, and monocytes, 40%. Again clinical improvement was rapid. During the next 10 months, the patient experienced repeated mild episodes of bleeding gingivitis and single buccal ulcers. There was slight elevation of temperature during these episodes, but the girl was able to continue with her routine of life and no hospital treatment was necessary. Many leukocyte counts taken during this period ranged from 2,800 to 5,400 cells per cubic millimeter and averaged about 4,000. Sometimes neutrophils were absent for four or five successive days. On other occasions, the number of neutrophils reached 46%. Complete hematological studies revealed no other abnormality.

Reference to the recently published paper by Reimann and de Berardinis[1] in which the entity periodic (cyclic) neutropenia was described suggested this as the probable diagnosis. During March and April, 1950, therefore, serial leukocyte and differential counts were done as nearly at daily intervals as possible. The results of this survey in terms of total neutrophils per cubic millimeter are shown in the table. Neutropenia lasting 5 to 8 days recurred regularly, with a recovery interval of approximately 12 to 14 days between each phase. Each cycle, with its phase of recovery and agranulocytosis, totaled 18 to 21 days. The diagnosis of cyclic neutropenia was thus established.

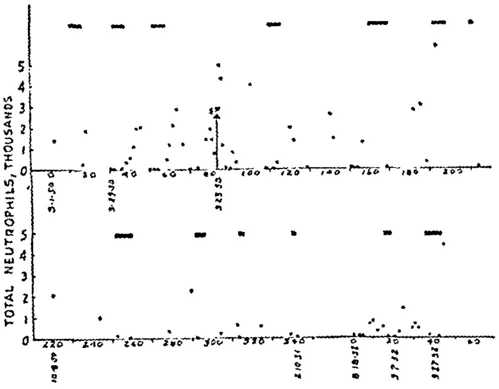
Treatment up to this time had consisted of good oral and skin hygiene for the prevention of infection, with the use of antibiotics when these episodes became severer. In view of the cases reported by Doan[7] and Fullerton and Duguid,[6] in which splenectomy was followed by relief of symptoms, it was decided that this procedure offered the patient the greatest hope for permanent improvement. On May 23, 1950, during a period of remission, splenectomy was performed. The postoperative course was uneventful, and the patient was discharged on the ninth hospital day. The pathologist's report stated that the specimen consisted of a spleen weighing 280 gm. The capsule was somewhat tense, and, on cut section, the tissue had a markedly congested and suggestive beefy-like appearance. There was no evidence of infarction, and the follicles were not at all prominent on gross examination. The pedicle was not unusual. On microscopic examination there was grade 2 neutrophilic infiltration of the splenic sinuses that was not accompanied by the usual congestion of sinuses found in toxic splenitis of the same grade. No unusual phagocytosis of these neutrophils was found. There was no unusual abnormality. The findings were consistent with the diagnosis of periodic neutropenia.

The immediate response to splenectomy by the leukocytes was a sharp rise in the number of white blood cells to a maximum level of 16,000 per cubic millimeter, with 87% neutrophils. By the third postoperative day, however, a reversion to previous levels had begun, and, subsequently, the next regular 21 day exacerbation of neutropenia occurred with the usual attendant gingivitis. For the next nine months, the patient was observed frequently, and cycles of neutropenia similar in degree to those noted before splenectomy recurred at the usual intervals. In the remission phase, however, the neutrophils often reached heights exceeding the presplenectomy levels. This was in part due to a permanent postsplenectomy rise in the average total leukocyte count (see figure). In spite of this, however, periodic infections continued to recur as the cycles of agranulocytosis continued unabated. In September, 1952, two years and four months after splenectomy, a survey of the neutropenic cycle was again made, and it was found to recur at precisely the same interval as before splenectomy (see figure).

Infections of moderate severity recurred regularly during the nine month period from May, 1950, to February, 1951, and hospitalization was necessary on one occasion. Several neutropenic periods were asymptomatic. A second pregnancy occurred in May, 1951, and, in July, the patient was admitted to the hospital during a neutropenic phase, with pyelitis of pregnancy. Recovery was rapid as usual. Except for this incident, there was no infection during the second pregnancy. A normal parturition took place in December, 1951, during a neutropenic phase and was without complication or infection of any kind. The infant was a healthy male. Four consecutive leukocyte counts done on the infant at the age of two months, over a period of 20 days, showed an average of 9,500 white blood cells per cubic millimeter, with neutrophils, 33%; eosinophils, 3%; lymphocytes, 60%; and monocytes, 14%, a normal differential count for an infant of this age. The first postpartum cycle of neutropenia in the mother was again accompanied by severe furunculosis, this time of the vulva. During the next nine months, there was no periodic infection; however, when last observed, in October, 1952, two recent successive cycles had been accompanied by moderate gingivitis with lymphadenitis and severe pharyngitis, respectively. Several severer attacks have occurred subsequently.

COMMENT

The cause of this rare disorder of the neutrophils is obscure. A congenital etiology is suggested by the 19 cases,[8] including the present one, reported in the literature in which about half had a definite history of onset in infancy. Regardless of the time of onset, however, the diagnosis may be made at any age. Two recent cases have been described in persons 64[1] and 78[5] years of age. Hereditary factors have not been adequately studied. In the case herein reported, they appear to be ruled out by the absence of neutropenia in both parents, siblings, and one child.



Periods of neutropenia, infection (rectangles), and total leukocyte counts in patient before and after splenectomy *(SP)*.

The mechanism by which the neutrophils periodically disappear from the blood remains equally obscure. By repeated marrow aspirations, Fullerton and Duguid[6] found that, in the neutropenic phase, not only neutrophils are reduced but also myelocytes and myeloblasts; thus, the entire myelocytic series is depressed. These authors conclude that the process is not a maturation defect or arrest. Sandella,[4] on the other hand, on the basis of multiple marrow aspirations, believes that depression and maturation arrest at the promyelocytic-myelocytic level are present during the neutropenic phase. Kline,[9] who has recently studied the life span of leukocytes, is unable to explain the sudden fall in the number of neutrophils by a cessation of cell production. He suggests excessive destruction of these cells as a more likely explanation. Periodic sequestration of the neutrophils also must

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7. Doan, C. A.: Personal communication to the author.
8. Footnotes 1, 4, and 5.
9. Kline, D. L., and Cliffton, E. E.: Measurements of Life-Span of White Blood Cells with Radioactive Phoshorus, Fed. Proc. **11:** 84 (March, pt. 1) 1952. Personal communication to the author.

be considered. The epinephrine test was done on this patient in periods of both remission and exacerbation in order to evaluate this possibility, but, in each instance, although a definite leukocytosis resulted, there was no increase in the absolute number of neutrophils.

Treatment with various hematinic drugs, hormones, antibiotics, vitamins, antiallergic drugs, and vaccines has so far failed to alter the cyclic changes in the neutrophils. Recently Monto and associates [5] described the use of corticotropin (ACTH) during the neutropenic phase. Seventy-two hours after this therapy was begun, the leukocyte count increased from 600, with almost complete agranulocytosis, to 1,650 per cubic millimeter, with 67% neutrophils and coincident clinical improvement. Reimann, however, after administering a single test dose of 25 mg. of adrenocorticotrophic hormone during an episode of neutropenia, noted a fall in total number of leukocytes from 4,000 to 2,000 per cubic millimeter and a further decrease in the number of neutrophils. In view of these conflicting results, it would appear that corticotropin should be tried in consecutive cycles of neutropenia before conclusions as to its value are reached. The effect of any treatment given during a single neutropenic cycle must be evaluated with regard to the spontaneous increase in neutrophils that always follows.

Splenectomy for the treatment of cyclic neutropenia appears to have first been performed in Doan's case.[7] His patient had both congenital hemolytic icterus and cyclic neutropenia. After removal of the spleen, the anemia was completely relieved, as expected; but in addition, the leukocyte count was raised from a low of 1,000 or less per cubic millimeter in the neutropenic phase to a level of 5,000. This permitted the patient to carry on her work in reasonably good health after many years of disability from recurrent infections. The regular cycles of neutropenia were unaffected. Up to the present, eight cases [10] similarly treated have been reported in the literature, including this case. In four of these,[11] substantial to complete relief from periodic infections resulted. Significantly, in each instance, the spleen was considerably enlarged: three to four times normal size, 500 gm., 670 gm., and 520 gm., respectively. The corresponding ages of these patients were 62, 18, 64, and 78 years. The remainder, including this case, continued to have periodic infections of a degree that indicated doubtful or no benefit from splenectomy. In this group, the spleen was normal or only slightly increased in size: 165 gm., 17 by 10.5 cm., 160 gm., and, in this case, 280 gm. The corresponding ages were 18, 23, 24, and 18 years, respectively. From this it appears that (1) splenectomy will be beneficial if the spleen is considerably enlarged, especially in an elderly patient, and (2) improvement should not be expected in young patients with a normal or slightly enlarged spleen. All patients have survived the operation without complications. Owen's patient died one year later from pneumonia. In Sandella's patient, death from lymphosarcoma occurred 16 months after splenectomy.

My patient has now been observed for two and a half years since splenectomy. During the first half of this period, the infections continued at regular intervals and their severity was unchanged. During pregnancy, infections were absent. During 1952, there were no significant infections for a period of nine months, but, during the remaining months, several severe attacks have occurred. Good hygiene and the early use of antibiotics have been helpful in controlling the episodes. Splenectomy may have had some palliative influence on the severity of the infections, yet incapacitating attacks have continued to occur in spite of the operation.

As to effects on the blood, removal of the spleen in the case described did not change the degree or periodicity of the neutropenic cycle, but it was followed by a rise in the average total leukocyte count (see table). Prior to the operation in May, 1950, the average of 30 leukocyte counts done in both phases over a two month period was 3,960 per cubic millimeter. In the early postoperative period of June to November, 1950, a similar average was 5,980. Two years later, in August and September, 1952, the average was 6,220. Similar effects have been noted by Monto, Doan, and Löffler. The increase in average number of leukocytes, without improvement in the degree of periodic neutropenia, was evidently not sufficient to raise the resistance to infections to a point at which they were eliminated. The complete relief of symptoms during two pregnancies is noteworthy, although no explanation is available. It is unfortunate that consecutive blood cell counts were not obtained during these periods.

Total Leukocyte Counts in Patient with Cyclic Neutropenia

Before Splenectomy		After Splenectomy		After Splenectomy	
Day	Total Count	Day	Total Count	Day	Total Count
March 29, 1950	3,750	May 30, 1950	6,300	Aug. 18, 1952	5,800
30	3,300	31	9,250	21	5,200
31	4,000	June 8	6,750	23	5,100
April 1	3,650	15	5,500	26	5,900
3	3,000	16	4,500	28	6,100
4	3,700	17	5,200	30	6,200
5	3,900	19	6,700	Sept. 2	6,450
6	3,600	20	9,950	4	5,400
8	3,300	22	6,450	8	6,950
10	4,200	28	5,600	10	6,400
11	4,850	30	4,400	12	6,500
12	5,450	July 6	5,150	16	5,900
13	5,400	11	6,850	18	6,900
14	5,250	18	7,250	20	5,700
15	4,800	19	6,800	24	5,400
18	3,400	27	5,700	30	7,300
19	2,200	29	6,000	Oct. 6	8,600
20	3,100	Aug. 2	3,700		
21	3,650	5	5,350		
22	2,900	16	4,200		
25	3,850	30	5,800		
26	3,850	Sept. 5	7,000		
27	3,650	7	4,050		
28	4,300	12	5,850		
29	4,600	Oct. 2	5,500		
May 1	4,250	9	6,500		
2	4,450	Nov. 1	5,350		
3	4,600	4	4,050		
4	4,300	10	5,500		
5	3,450	13	7,350		
Average	3,963	Average	5,952	Average	6,223

Accurate diagnosis of this entity is important, for the disorder must be differentiated from acute and chronic neutropenia. Only by doing serial differential blood cell counts can this be accomplished. Other important diagnostic features are (1) a history of recurrent infections of the skin or mucous membranes over a period of years, possibly from infancy, (2) the presence of recurring cycles of neutropenia or agranulocytosis coinciding with these episodes, and (3) the sustained good general health of the person. Once the diagnosis is made, wise management of the patient can greatly ameliorate the economic consequences of a life-long periodic illness.

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[10] Reznikoff, P.: Cyclical Neutropenia: A Case Study with Bone Marrow Findings Before and After Splenectomy, Tr. A. Am. Physicians **59**: 276-281, 1946. Owen P. A.: Cyclic Agranulocytosis, Acta med. scandinav. **134**: 87-97, 1949. Löffler, W., and Maier, C.: Über einen Fall von Feltyschem Syndrom mit cyclischer Agranulocytose, *Cardiologia* **12**: 195-210, 1947-48. Footnotes 4, 5, 6, 7, and 9.

[11] Footnotes 4 through 7.

SUMMARY AND CONCLUSIONS

Cyclic neutropenia in a 16-year-old girl observed over a four year period is described. Splenectomy was not followed by relief from periodic infections. No effect on the regularity of the cycles or on the degree of neutropenia resulted; however, the total leukocyte count increased from an average of 3,960 before splenectomy to an average of 6,220 per cubic millimeter two and a half years later. Spontaneous relief from infections occurred during two pregnancies.

A review of eight cases collected from the literature shows that splenectomy will most likely be beneficial in the elderly patient with considerable splenomegaly. Little or no benefit may be expected if the patient is under 25 years of age and if the spleen is normal or slightly enlarged.

205 W. Second St.

VACCINIA OF THE EYELIDS

TREATMENT BY AUREOMYCIN IN A SECOND CASE

Col. John H. King Jr.
and
Major Robert L. Forrest, (MC), U. S. Army
Washington, D. C.

Vaccinia of the eyelids, although not a rare condition, is uncommon and may cause serious ocular complications. Contact infection from others with vaccinia is probably commoner than autoinoculation.[1] In about one-third of the cases, the cornea becomes involved,[2] and vaccinial diskiform keratitis and necrosis may result in loss of the eye. Untreated vaccinia usually runs a course of 28 to 31 days. Crusting may appear after the 12th day, followed by a varying period of ulceration. When large areas of the lid margins are involved, thickening may persist for several months and gradually disappear or may be followed by permanent distortion or symblepharon.[3] The infection may spread to the other eye, and necrosis may follow secondary infection.[1]

Treatment in the past has been concerned chiefly with the symptoms, maintenance of sanitary conditions, and application of various antiseptic solutions locally. Atkinson and Scullard [2] advised therapeutic measures aimed specifically against the vaccinia virus. These appeared valuable in experiments with animals but had not been applied to human beings. Potassium permanganate applied locally and ascorbic acid given orally were recommended because it was thought that their oxidizing properties might inactivate the virus.

One of us (J. H. K.)[4] treated a 2-year-old patient who had severe, primary vaccinia of the eye with aureomycin supplemented by several of the measures mentioned above. The cure was dramatic and rapid; the lesions improved in 24 hours and disappeared completely in 4 days. It was felt that aureomycin exerted a definite rapid antiviral action in this case. Atkinson,[5] using the same antibiotic, obtained a good response in a patient with vaccinia of the eyelids complicated by early corneal involvement. Sichi [6] also used aureomycin, by mouth only, for the rapid cure of a case of severe vaccinia of the conjunctiva.

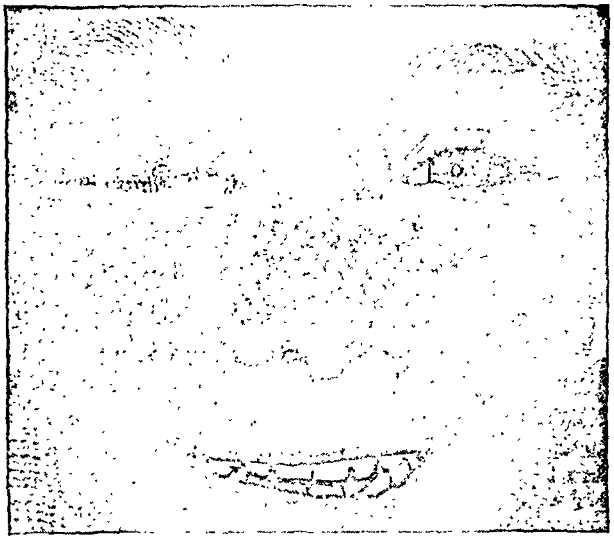
Fig. 1.—Vaccinia of the eye with facial edema.

REPORT OF A CASE

Ten days before admission to the hospital, a 6-year-old white girl was vaccinated on the left upper arm. A lesion typical of vaccinia developed. Six days after the vaccination, the child's mother noticed a slight redness and swelling of the right eyelids. During the next four days, ulcerated areas developed on the medial aspect of the right upper lid, with marked edema and redness. The lids swelled shut, and ulcers developed on the skin of the lower lid coming in contact with the lesions of the upper lid. Two days after the onset, the patient was taken to a physician and was given a dose of 600,000 units of penicillin intramuscularly. Streptomycin ointment was applied locally four times daily. Two days of this treatment failed to alter the progress of the lesions.

When the patient was admitted to the hospital, the right eyelids and adjacent skin were so swollen that the globe could be observed only by forcing open the lids (fig. 1). There were four ulcerated lesions of the lids; the two on the upper lid were held in contact with the two on the lower lid by the edema (fig. 2). The surfaces of the ulcers were covered with yellowish-white membranes. The cornea and conjunctiva were normal. There was also a vaccinia lesion on the left upper arm. Except for a temperature of 101.2 F, there were no other physical signs. A portion of membrane from one eyelid lesion and one from the lesion on the left upper arm were

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From the Ophthalmology Service, Walter Reed Army Hospital.

1. Duke-Elder, S.: Textbook of Ophthalmology, vol. 5, The Ocular Adnexa, St. Louis, C. V. Mosby Co., 1952, pp. 4882-4883.
2. Atkinson, W. S., and Scullard, G.: Vaccinia with Ocular Involvement, Arch. Ophth. 23:584-585, 1940.
3. Bedell, A. J.: Multiple Vaccination of the Eyelids, Am. J. Ophth. 3:103, 1920.
4. King, J. H., and Robie, W. A.: Primary Vaccinia of the Eyelids: Treatment by Aureomycin, Am. J. Ophth. 34:339-341, 1951.
5. Atkinson, W. S.: Personal communication to the authors, 1951.
6. Sichi, W.: Personal communication to the authors, 1952.

sent to the virus laboratory to be cultured separately. A blood specimen was also taken to determine the patient's immunity to vaccinia.

The following therapy was instituted: aureomycin, 250 mg. every eight hours, was given by mouth for a total of 120 hours. Aureomycin (5.0 mg. per cubic centimeter) borate solution was used to flush the right eye and eyelids every four hours while the patient was awake, for five days. Potassium permanganate (1:100,000 solution made fresh daily) was applied by wet compresses four times daily for five days. Ascorbic acid, 50 mg. twice daily by mouth, was administered for five days.

Twenty-four hours after the treatment was instituted, the edema of the lids had receded, and the child was able to open the right eye. Temperature had returned to normal. In 48 hours the swelling had almost completely disappeared; the ulcerated areas of the lids had begun to heal; and eschars had formed. After 72 hours, all the ulcerations except one had healed, and the edema and inflammation had disappeared. At 96 hours the ulcers had healed completely, and only small indurated areas marked the location of the lesions. The patient was released from the hospital in five days, and aureomycin borate solution was used in the right eye for an additional four days.

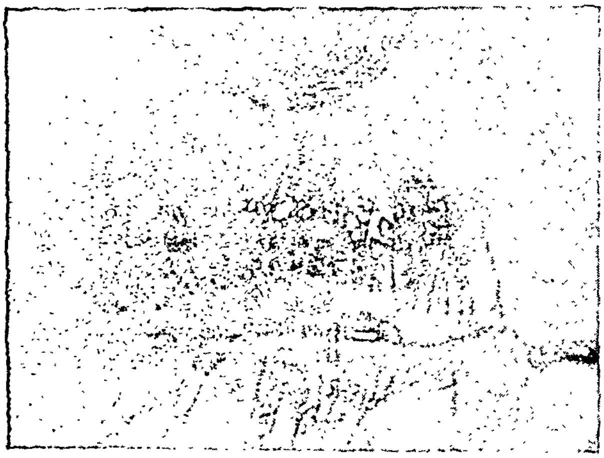


Fig. 2.—Ulcerated lesions in vaccinia of the eye.

The virus cultures taken from the lesions on arm and eyelids at the time of admission showed the same strain of virus. The blood specimen taken at the time of admission, as well as that taken two weeks later, revealed a rising titer of antibodies to vaccinia virus. The child was examined two weeks after discharge from the hospital, and no evidence of scarring of the lids was present.

SUMMARY AND CONCLUSIONS

Vaccinia of the eyelids, although uncommon, is a serious condition with complications that may cause the loss of vision. Severe vaccina of the eyelids in a 6-year-old girl that responded rapidly to aureomycin locally and orally is described. The etiology was proved by cultures and animal inoculation. In a previously reported case,[4] dramatic response was obtained by the same treatment, but with the addition of penicillin. In the present case, penicillin had been previously administered without results. In our knowledge, two other patients with vaccinia involving the eyes, one with corneal complications, also responded well to treatment with aureomycin. The early use of aureomycin, administered orally and locally, is recommended for the treatment of ocular vaccinia.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following article.

Ralph E. De Forest, M.D., *Secretary.*

CALCULATORS FOR APPLYING THE OGINO-KNAUS THEORY

The following statement is deemed necessary in order to counteract the misleading impact of some, though by no means all, of the advertising of devices sold to the public in connection with the so-called rhythm method of birth control. A considerable number of such devices for applying the Ogino-Knaus theory have been sold. The Council on Physical Medicine and Rehabilitation is charged with the responsibility of examining contraceptive devices that come into direct contact with the human body, and in its consideration of such devices has had the very helpful cooperation of an Advisory Committee on Sterility and Fertility. The various types of calculators, slide rules, and tables sold to the public for use in applying the rhythm method are not strictly within the purview of the Council because they are not directly applied to the human body. Nevertheless the Council has become concerned because the advertising literature that has been used to promote the sale of some of these devices in some instances has been quite misleading, while in other instances manufacturers have earnestly requested an opinion as to what could properly be claimed for such devices.

Eleven such devices, which have been studied in preparation of this report, will be described briefly for purposes of illustration.

1. A set of ovulation timetables is distributed mainly to physicians by a manufacturer of pharmaceuticals. The tables are printed on cards, with a system of pointers and several explanatory folders and sheets, and are intended to apply to patients whose cycles are 21, 24, 26, 28, or 30 days.

2. Another device consists of two aluminum disks between which a printed celluloid disk rotates. The device is enclosed in a purse-like leather case along with some printed matter addressed to the physician and claiming the approval of a distinguished clinician.

3. A cardboard box is equipped with a calendar in the form of a slender paper strip that slides through an arrangement of slots and tabs. A certain amount of information is printed on the box. No unreasonable claims are made, and the patient is advised, "In case of doubt, consult your physician or do not use the method at all."

4. A 16 page booklet has a pocket containing an arrangement of celluloid disks with a pointer. The textual material in the booklet is conservatively worded.

5. A similar 72 page leather-covered book has a pocket containing a similar calculating device. This consists of five laminas of celluloid bearing printed information and fastened together. The information in the book is carefully written and largely factual; it includes many quotations from ecclesiastical authorities and gives references to scientific publications.

6. Three cardboard disks so fastened together that they can be rotated are accompanied by a wealth of printed matter that seems to be carefully written.

7. A plastic device offered by a foreign manufacturer contains a roller that can be rotated. By appropriate settings of various graduated scales, one can read the days assumed to be fertile or sterile.

8. A circular cardboard disk, advertised as being "scientific," is embellished with a seductive figure of a woman and marked with card-players' symbols for heart, diamond, spade, and club. The disk rotates on a cardboard square on which a

circle is laid off into 365 divisions to represent the days of the year.

9. A device resembling a slide rule is described by the promoter as a "new automatic device that forecasts the days of the month when pregnancy is possible and impossible . . . based upon the discovery . . . that women can become pregnant only two days a month and that these days can be determined accurately in advance . . . the most fool-proof method of spacing birth known to medical science. Dr. ——, M.D., writing in the *American Medical Association Journal* reports not a single pregnancy in almost 16,000 cases where the system was used. . . . More dependable than any mechanical contraceptive, the System is sanctioned by all churches, is legal, and is preferred for psychological and moral reasons."

10. Another device consists of a slotted cardboard box with a roll of paper inside. The paper strip has the days of the year printed on it and is drawn out through the slot in such a way as to pass under an adjustable piece of cardboard bearing the words "sterile" and "fertile." By adjusting this piece and pulling the paper strip out of the box the user can make the intended calculation.

11. Probably the neatest and easiest to use of the devices examined is a 212 page book resembling a collection of logarithm tables. A woman who has observed her own menstrual cycles long enough to be able to state a maximum and a minimum length of cycle (for example, 33 days maximum and 24 days minimum during a given period of observation) finds two pages of explicit tables listing the "baby days" following any one of the possible 365 days on which the previous menstruation began. While the tables must be commended as a clear and accurate presentation of the results of calculations based on certain assumptions, the accompanying text does not accurately reflect the current opinion of either medical or ecclesiastical authorities. The following passages are examples: "Full recognition of the . . . Rhythm Method is evidenced by the medically authoritative *Journal of the American Medical Association* which stated 'Enough evidence has already been established to indicate that a strict observance of the method . . . is insurance of sterility even beyond that associated with the employment of most of the contraceptive apparatus and medicaments.' . . . All churches have accepted the Rhythm Method because it follows natural, biological control. . . . Artificial contraception does violate religious, legal and ethical principles."

In connection with the aforementioned items it seems desirable that the following statements be made, however self-evident they may seem to the regular readers of The Journal:

1. There is no scientific objection to tables, slide rules, or nomograms giving the results of calculations of "baby days" and "sterile days" if the assumptions underlying the calculations are explicitly and clearly stated, if the element of probability (as contrasted with certainty) is duly emphasized, and if the accompanying text is free from misleading or exaggerated statements.

2. It is important that the rules of semantics be obeyed in explanatory or apologetic material accompanying such devices and, in particular, that the words always, usually, sometimes, rarely, never, all, most, many, some, few, and none be used with care. The ethical or religious opinions of any one authority should not be given as representing all systems of philosophy or all religious groups, and the statement of any single investigator or editor should not be treated as if it were the unanimous verdict of a large professional group.

3. Semantically treacherous expressions like "natural," "artificial," and "nature's method" should be avoided, especially when irrelevant.

4. The following limitations of the rhythm method should be admitted: (*a*) It presupposes long periods of abstinence in addition to the briefer periods related to each menstrual cycle. (*b*) It makes no provisions for men, such as soldiers, whose occupation keeps them away from home except for brief and irregular periods of leave. (*c*) It "can be depended upon only by the normal, healthy woman and only under normal accustomed conditions." An appreciable number of patients without physically evident abnormality experience cycles shorter than 20 days or longer than 40 days, and the method is more and more unsuitable the greater the deviation from the assumed regularity. (*d*) It involves backward calculation from an anticipated event; the hazards of this process should be appreciated by whoever chooses it.

5. Despite the conviction, explicitly stated and tenaciously held by some authorities, that ovulation in women occurs on the 15th day before menstruation, other investigators continue to report evidence that the figure varies. Occasional intervals as short as nine or eight days have been indicated by a study of temperature charts. This uncertainty leads to the conclusion either that the number of "safe" days must be further curtailed or that the rhythm method must be supplemented by additional contraceptive precautions when pregnancy is strongly contraindicated.

6. It should be noted in connection with all these devices that they cannot do any more than an intelligent person can accomplish with paper and pencil, a calendar, and the necessary facts of observation and that they have a positive usefulness in increasing the probability of desired pregnancy in addition to the negative usefulness in contraception.

The foregoing statements are made necessary by repeated, sometimes misleading, references to the American Medical Association in the advertising of calculators for applying the Ogino-Knaus theory and are intended to apply only to the scientific aspects of the subject.

APPARATUS ACCEPTED

The following additional product has been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

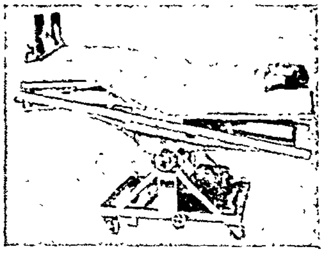
Ralph E. De Forest, M.D., *Secretary*.

Emerson Rocking Bed, Standard Hospital Model.

J. H. Emerson Company, 22 Cottage Park Ave., Cambridge 40, Mass.

The Emerson Rocking Bed is an apparatus designed to aid the respiration of patients with poliomyelitis during the transition from dependence on the tank type of respirator to independence. The rocking bed may provide necessary breathing aid for patients with partial but not extreme paralysis of the breathing muscles. The rocking bed is not intended to be substituted for the tank type respirator.

The apparatus measures 120 (high) by 200 by 92 cm. (4 by 6½ by 3 ft.) and weighs 227 kg. (500 lb.). Crated for shipment it measures 244 by 137 by 122 cm. (8 by 4½ by 4 ft.) and weighs 250 kg. (550 lb.). It operates on a standard light circuit and draws 782 watts. The motor requires 115 volt alternating current at 60 cycles, unless otherwise specified.



Emerson Rocking Bed, Standard Hospital Model.

When the bed is in operation, it oscillates about a fulcrum that is 16 to 18 cm. (7 to 8 in.) below the level of the patient's body, producing a to-and-fro motion. At the same time the longitudinal axis of the patient's body tilts +30 to −30 degrees about the horizontal and makes a total oscillation of 60 degrees. The speed is adjustable to conform with the patient's normal breathing rate, that is, from 15 to 26 oscillations per minute.

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ARMED FORCES FACED WITH SURPLUS OF MEDICAL OFFICERS

A series of events have taken place within the past two months that has drastically changed the military medical manpower picture. These changes and the current situation are herein outlined in detail so that physicians may know what their probable military status will be during the next few months.

As recently as July 1 of this year it was the stated opinion of officials of the Department of Defense that the requirements of the Army for medical officers could not be met without recourse to a medical draft call by the Selective Service System. A request for 524 physicians was officially made by the Secretary of Defense to the Director of the Selective Service System, who acted immediately to effect the call-up of these physicians through state and local Selective Service agencies. Shortly thereafter a flood of applications for reserve commissions and active duty orders was received from physicians primarily in priorities 1 and 2 who had previously been temporarily deferred for reasons of essentiality and to complete internship and residency training. These volunteers now exceed 1,200, a number far in excess of the present medical requirements of all of the branches of the armed forces combined.

The termination of hostilities in Korea, a decision on the part of certain medical officers to extend their current tour of military duty until 24 months of service is completed, and the reduction in the ratio of physicians to troop strength ordered by the Secretary of Defense all served to increase the surplus. Notwithstanding this excess of medical officers, the Selective Service System refused to cancel its pending draft call, which forced 524 additional doctors to accept reserve commissions and apply for immediate active duty or be drafted as privates by August 28.

The Army has announced that no more applications for commissions will be accepted after September 1 and is frantically urging its excess reservists to delay their requests for active duty for as much as one year. Even those who are insisting that they be called immediately cannot be placed in training classes until November or December at the earliest. It appears to be certain not only that the current draft call was unnecessary but that there will be no more such calls for many, many months to come.

It is apparent that as a result of this situation many hysicians and local communities will be seriously inconvenienced. Acting in good faith and on the basis of the assertions by officials in Washington that medical personnel was sorely needed, many of these men have closed their offices or have discontinued their plans for additional residency or postgraduate training. In many instances this discontinuance of training was forced on them because of the prohibition that prevented hospitals from accepting priority 1 and 2 men to fill available residency vacancies.

Having terminated their civilian commitments on the assumption that they were needed immediately by the armed forces, these physicians are now faced with the prospect of an indefinite status for the next year or more. Possibly it is still not too late for many of them to change their plans, to request a delay in call to active duty, and resume their civilian occupations.

The alternative to a delay in the issuance of active duty orders to these men is the immediate call-up of an excessive number of medical officers. The disastrous long-range effects of this action would be: a wastage of medical manpower that would result in a reduction in the number of physicians available to care for the civilian population; a tendency to use excess medical officers on nonmilitary assignments; a squandering of available medical registrants under the "Doctor-Draft" law, which would accelerate the call-up of doctors in priorities 3 and 4; an inefficient utilization of physicians in uniform, with a resulting lowering of morale and general dissatisfaction with military service; and a nullification of the newly established ratio of 3 per 1,000 between medical and over-all troop strength, a goal that has been extremely difficult to attain.

The government officials charged with the administration of the "Doctor-Draft" law are obligated to call to active duty only those physicians who are needed and immediately to advise medical reservists as well as Selective Service medical registrants when they can expect to be called for military service.

FARM ACCIDENTS

One of the most hazardous of all occupations today is farming. In 1952, 62 out of every 100,000 farm residents lost their lives as a result of some sort of farm accident. An additional 1,200,000 farm residents suffered injuries. Most such accidents were preventable, and usually only one person was to blame—the person involved in the accident.

Farming has the third highest death rate among the major industries in the nation, surpassed only by the mining and other extractive and construction industries, it was reported in the current "Accident Facts" published yearly by the National Safety Council. Motor vehicle accidents among farm residents accounted for 6,000 deaths and 210,000 injuries, home accidents for 3,500 deaths and 540,000 injuries, occupational accidents for 3,800 deaths and 320,000 injuries and public non-motor-vehicle accidents such as streetcar or sidewalk mishaps for 1,300 deaths and 150,000 injuries.

Increasing use of machinery on farms may be a causative factor in the high death rate. There were about 700 fatal and about 25,000 nonfatal accidents involving farm wheel tractors in 1952. Fifty-five per cent of these deaths resulted from overturned tractors, and 16% were the result of falls from the vehicle. In 8% the victim was run over by the tractor, and in 5% he was crushed between the tractor and another object. Three per cent of such deaths resulted from entanglement, and 13% from other and unspecified causes.

Farming is one of the few occupations in which children are permitted to be close to operating machinery. It is no wonder, then, that one-third of the 306 fatal tractor accidents reported by Wisconsin and Ohio to the National Safety Council over a period of several years involved persons under 20 years of age. One case in 10 involved a child under 5 years of age. Deaths among the very young often resulted from falls that occurred while the children were riding on tractors.

One-third of the tractor fatalities in Minnesota and Iowa during 1949-1951, as reported to the National Safety Council, occurred in highway accidents. Considering the small proportion of time that tractors are on the highways, the accident rate during this use is probably much higher than the rate during use on the farm.

On the basis of corn harvest accidents in Iowa during 1952, it has been estimated that doctor and hospital costs per accident average $160, while the time lost averaged 30 days.

Farmers must be as accident conscious as their city friends. Since carelessness is responsible for most farm mishaps, they must realize that caution is synonymous with common sense. Such advice from a physician offers just as much preventive medicine as a vaccination against smallpox or the purification of drinking water.

Most physicians are close to their patients and take a personal interest in their welfare. This relationship is even more pronounced in the rural areas, where the physician and the farm resident usually share more than a patient-physician affinity. Therefore, the rural physician is in an ideal position to proffer advice that may prevent farm accidents. Every rural physician should volunteer safety facts and fallacies. It may be too late when the information is sought.

DENTAL FOREIGN BODIES IN THE LUNG AND ESOPHAGUS

Dental foreign bodies that have found their way into either the lung or the esophagus constitute a relatively small but important part of endoscopic practice. According to Hagens,[1] there are three main sources from which these cases originate. In the first group, a tooth or portion of a tooth, an inlay or filling, tartar, a piece of plaster impression, or a broken part of an instrument may slip from the grasp of the dentist and be aspirated or swallowed before the material is recovered. A second source of dental foreign bodies is supplied by patients who permit their teeth and dentures to fall into a deplorable state of disrepair. During the act of eating or swallowing, for example, a portion of the denture is broken, swallowed, and lodged in the esophagus, an event requiring endoscopic intervention. In the last group, teeth are loosened and sometimes lost as the result of manipulation of mouth gags and instruments during surgery in which a general anesthetic is used; this occurs especially in children undergoing tonsillectomy and adenoidectomy.

In general, patients should be carefully examined just as soon as it has been established that a dental foreign body has been swallowed. Roentgenograms are most helpful, not only in demonstrating the presence and site of the foreign body itself but also in displaying the reaction of tissues surrounding the object. When barium is used in the esophagus, it may stop at the level of the foreign body and, in some instances, cling to part of it. A tooth lodged in the bronchus of a child frequently produces high fever and a persistent cough, as well as other signs and symptoms pointing to the presence of a foreign body in the lung. Hagens asserts that in the case of two patients gold inlays slipped from the dentist's grasp; in one patient, a tooth was aspirated during the process of extraction; in another patient, a piece of dental plaster was aspirated; in two patients, dentures loosened during the act of swallowing; and, finally, in two patients, there was loss of a tooth during surgery of the throat.

WILLIAM VOLKER FUND

The establishment of the William Volker Fund extends the grants-in-aid program of the Committee on Research of the Council on Pharmacy and Chemistry into the basic medical sciences. When first organized as the Therapeutic Trials Committee, and up to the present, its fundamental objectives were to stimulate progress in the control and treatment of disease through facilitating investigations to establish the usefulness of diagnostic, preventive, and therapeutic agents.

The Board of Trustees of the American Medical Association in accepting a block grant from the William Volker Charities for administration by the Committee on Research also created an important precedent. Their decision establishes a pattern that may be followed by other large philanthropic organizations that desire to make contributions to the health field. By this mechanism grantors are guaranteed an impartial board of medical review by outstanding scientists well prepared to evaluate the proposed experiments. The entire grant will be spent on medical research, since the costs of customary overhead are borne by the American Medical Association.

The William Volker Fund is not specifically restricted to grants in special fields such as heart disease, cancer, or hypertension. The Committee on Research feels that this is commendable, since the progress of medical research requires broad investigations in all fields of medical endeavor, including the basic sciences. This approach should furnish better understanding of the normal cell and organ functions than can be secured by research directed primarily to departures from the normal processes.

Grants from the fund will be made to individual applicants and will be limited to the range of $500 to $1,000. The funds may be applied to defray expenses attendant to research, with the exception of salaries, services, and travel. Applications may be secured by addressing Dr. E. M. K. Geiling, Chairman, Subcommittee on Grants-in-Aid, Committee on Research, Council on Pharmacy and Chemistry, American Medical Association.

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[1] Hagens, E. W.: Dental Foreign Bodies of the Lung and Esophagus, Quart. Bull. Northwestern Univ. M. School 27: 123, 1953.

MEDICAL NEWS

ALABAMA

Narcotic Violation.—Dr. William J. Craig, Florence, Ala., pleaded *nolo contendere* in the United States District Court at Huntsville to a charge of violating the federal narcotic law, and on April 7 was placed on probation for three years.——On June 4, Dr. Horace Greeley Franklin, Thorsby, pleaded guilty in the U. S. District court of Montgomery to violation of the federal narcotic law and was sentenced to a term of 15 months.

Dr. Whetstone Day in Sylacauga.—By official proclamation, Aug. 2 was declared "Dr. Whetstone Day" in Sylacauga in honor of Dr. Adair K. Whetstone. The proclamation stated, in part, that Dr. Whetstone had "performed outstanding medical service and (had) constantly rendered his professional services without thought of personal reward and . . . (had) been an outstanding citizen and (had) reared and educated eight daughters and two sons who also are honorable citizens and who have made fine contributions to this community. . . ." Churches throughout the city paid tribute to Dr. Whetstone at their morning services, and at First Methodist Church, where Dr. Whetstone has served as steward for 51 years, three scholarships in his name were awarded to the Sylacauga Hospital School of Nursing. Dr. James S. McLester, Birmingham, presented the scholarships. Dr. James O. Morgan, Gadsden, president of the Medical Association of the State of Alabama, was speaker at the afternoon program at Noble Park.

CALIFORNIA

Dr. Cutting Named Acting Dean.—Dr. Windsor C. Cutting, professor of therapeutics, Stanford University School of Medicine, Stanford University-San Francisco, has been named acting dean of the school to succeed Dr. Loren R. Chandler, who has resigned after a 20 year tenure but will continue as professor of surgery. Dr. Cutting, who has been affiliated with the faculty since 1938, will continue to serve as head of the department of pharmacology and therapeutics. Dr. Cutting, a member of the A. M. A. Council on Pharmacy and Chemistry and of the executive committee of the U. S. Pharmacopeia, is editor of "Annual Review of Medicine" and is on the editorial board of "Excerpta Medica."

COLORADO

County Society Library.—Ground has been broken at Franklin St. and East 19th Ave., Denver, for the new $300,000 Denver County Medical Society library. The land, located at the southwest corner of the Presbyterian Hospital grounds, was given the society by the Presbyterian Hospital Association. The library building will also house the offices of the county medical society. Among those participating in the ceremonies were Drs. Nolie Mumey, president of the Presbyterian Hospital Association, Lumir R. Safarik, president of the county medical society, William A. Liggett, president of the Colorado State Medical Society, W. Bernard Yegge, chairman of the county society's board of trustees, Walter W. King, medical society librarian, and James M. Perkins, all of Denver.

Personal.—Dr. Walter H. Prockter, Nucla, has been named company physician for the United States Vanadium Corporation in Uravan.——Dr. Frank H. Zimmerman, superintendent of the Colorado State Hospital at Pueblo, was recently awarded a citation by Gov. Dan Thornton on completion of a quarter century of service at the institution.——Col. Carl W. Tempel, chief of medical service, Fitzsimons Army Hospital, Denver, recently delivered the annual Hyman I. Spector lecture at the St. Louis University School of Medicine.——Dr. John D. Gillaspie, mayor of Boulder, has been named a director of the First National Bank to fill the vacancy caused by the resignation of Robert L. Stearns, former president of the University of Colorado.——Dr. Freburn L. James, formerly of Glendale, Calif., has been appointed pathologist of the Boulder-Colorado Sanitarium and Hospital and the County of Boulder General Hospital in Boulder. Dr. James was recently affiliated with the Army Hospital in Camp Roberts, Calif.

IDAHO

State Medical Election.—At the annual meeting in Sun Valley the Idaho State Medical Association elected Dr. E. Victor Simison, Pocatello, president and Dr. Alexander Barclay Jr., Coeur d'Alene, president-elect and reelected Dr. Robert S. McKean, Boise, secretary-treasurer.

ILLINOIS

Health Council Appointed.—Dr. Robert H. Bell was recently appointed chairman of an advisory council to the Carlinville department of health, of which Dr. William W. Lusk, health officer, is an ex officio member. Dr. Robert H. Rutherford has been named special adviser, health agencies. The appointments are the result of a petition endorsed by local physicians, the Carlinville area hospital administrator, and the hospital auxiliary president, suggesting formation of a professional health department that would make recommendations pertaining to health and sanitation to the board of health.

Chicago

Personal.—Dr. Benjamin M. Gasul will deliver a series of three lectures at the City of Hope, Duarte, Calif., and the Cedars of Lebanon Hospital, Los Angeles, on "Recent Advances in Pediatric Cardiology" during the first week of September.

Meetings of Naval Reserve Medical Unit.—Medical Unit 9-20, U. S. Naval Reserve announces the following programs to be held at the U. S. Naval Reserve Armory, Randolph St. and the lake, 8 p. m.

Sept. 8, Brain Injury (movie).
Sept. 15, Arthur R. Colwell, Selective Treatment of Diabetes Mellitus.
Sept. 22, Robert H. Ebert, Newer Therapy of Tuberculosis.
Sept. 29, John Van Prohaska, Multiple Organ Resections for Carcinoma.

IOWA

Dr. Bierring Retires as Health Commissioner.—The Iowa State Medical Society recently adopted a resolution commending Dr. Walter L. Bierring, Des Moines, for his contributions to medicine in Iowa and recommended that he be placed on the list of "all-time great physicians of our state." Dr. Bierring, 84, recently retired as state health commissioner. At a testimonial dinner at the Des Moines Club, given by the state board of health, a certificate of appreciation was presented that read, in part: "We present this token of the gratitude of the people of Iowa for the 60 years you have so faithfully devoted to the improvement and preservation of their health. The accomplishments of your most distinguished career are only surpassed by the graciousness and efficiency with which you have conducted the office of commissioner during the past 20 years." Dr. Bierring, who was President of the American Medical Association in 1934, has served also as president of the Iowa State Medical Society, the Johnson County Medical Society, and the Polk County Medical Society. In 1954, he will have been president of Alpha Omega Alpha for 20 years.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

KANSAS

Pediatric Society to Be Formed.—Plans for the organization of a Kansas pediatric society will be discussed at a meeting for Kansas pediatricians and all physicians interested in pediatrics at Emporia, Sept. 19. Arrangements are being completed by a committee composed of Drs. Charles T. Hinshaw, Wichita; William H. Crouch, Topeka, and David R. Davis, Emporia. There will be an all-day scientific program, presented by out-of-state pediatricians, with a two-hour luncheon period devoted to round-table discussions. Physicians interested should write immediately to Dr. David R. Davis, 103 Gazette Bldg., Emporia.

KENTUCKY

Home Accident Prevention Program.—The W. K. Kellogg Foundation of Battle Creek, Mich., has granted $107,540 to the Kentucky State Department of Health for a three year home accident prevention program. Full support will be given by the foundation for the first two years. The state will assume some financial cost in the third year and, it is anticipated, will support the project entirely thereafter.

Personal.—Dr. Keith P. Smith, chief of staff, Corbin Municipal Hospital, was recently elected president of the Kentucky Academy of General Practice and vice-president of the Kentucky State Medical Association. Dr. Smith, who was formerly associated with his father, the late Dr. Festus S. Smith, and a brother, Dr. Truman S. Smith, previously served as manager of the Smith Hospital.——Dr. T. Eugene Andes, formerly clinical director of State Hospital, Morganton, N. C., has been named clinical director of Central State Hospital at Lakeland, to succeed Dr. Charles D. Yohe, who has become clinical director of Kentucky State Hospital, Danville.——Dr. Robert F. Hansen, former coordinator of preventive medical services for the state department of health, has been appointed deputy director of the city-county health department in Louisville. He will also be associate professor of community health at the University of Louisville Medical School.——Dr. J. Duffy Hancock, Louisville, president-elect of the Kentucky State Medical Association, has been named president-elect of the 12 state Southeastern Surgical Congress.——Dr. Jack L. Chumley, Louisville, has been appointed associate editor in charge of scientific content of the *Journal of the Kentucky State Medical Association*.——Dr. Donald L. Martin, Louisville, a surgeon at Veterans Administration Hospital, recently accepted an assignment as medical missionary in the Belgian Congo from the American Baptist Foreign Mission Society.——Dr. Edward Wilson, Pineville, was recently honored at a dinner at the Pineville Community Hospital, which he helped to found. On completion of 50 years of practice, his associates presented him with a plaque, and employees of the hospital gave him binoculars. Dr. Wilson's eldest son, Dr. Edward S. Wilson, is associated with him in practice.

MARYLAND

Dr. Becker Named Professor of Ophthalmology.—Dr. Bernard Becker, Baltimore, has been appointed professor and head of the department of ophthalmology, Washington University School of Medicine, St. Louis, replacing Dr. Lawrence T. Post, who retired from these duties July 1. Until Dr. Becker assumes his duties, about Jan. 1, 1954, Dr. Theodore E. Sanders will be acting head of the department.

MICHIGAN

Society News.—The Detroit Academy of Orthopedic Surgery has elected the following officers: president, Dr. Francis P. Walsh, vice-president, Dr. Peter G. Shifrin, and secretary-treasurer, Dr. John Lyford. The regular meetings of the Detroit Academy of Orthopedic Surgery will be held at the University Club at 6:30 p. m. on the second Monday in October, November, and December, 1953, and January, March, April, May, and June, 1954.

Is There a Doctor in the House?—A new call system, which is of interest to members of the medical profession, has been placed in operation at the Krim Theatre in Detroit. This ingenious call system will allow a physician to keep in touch with his office, hospital, or home while at this theater. It operates as follows: On entering the theater, the physician may present his card to the theater cashier, who will give him a designated number. When a call for him is received, the cashier throws a switch on a control panel in the box-office. This lights up the physician's number on a special panel screen on the left side of the stage. On seeing his special number on this screen light up, the physician proceeds to the manager's office and accepts his call over the private telephone line reserved for this purpose.

MINNESOTA

Hobby Awards.—Winners of first place awards in the Physicians' Art and Hobby Show at the 100th annual meeting of the Minnesota State Medical Association include: Drs. John P. Wendland, Minneapolis, photography; Harold J. Rothschild, St. Paul, drawing; James L. Benepe, St. Paul, oils; James J. Berens, Rochester, handicraft; Robert L. Wilder, Minneapolis, sculpture; and Alexander E. Ratelle, St. Paul, popular vote of convention visitors for his "Portrait of a Lady."

MONTANA

State Society's Jubilee Meeting in Billings.—The 75th anniversary meeting of the Montana Medical Association will be held at the Eastern Montana College of Education, Billings, Sept. 17-20, under the presidency of Dr. James M. Flinn, Helena. Guest speakers and their first presentations include:

James B. Brown, St. Louis, Management of Compound Facial Injuries.
William G. Klingberg, St. Louis, Erythroblastosis Fetalis.
John E. Hobbs, St. Louis, Office Treatment of Gynecological Problems.
Charles K. Petter, Waukegan, Ill., Evaluation of Newer Methods in Treatment of Tuberculosis.
J. William Thompson, St. Louis, Surgical Diseases of the Biliary Tract: Practical Points in Management.
Joseph C. Edwards, St. Louis, Diagnosis and Treatment of Essential Hypertension
Alson E. Braley, Iowa City, Emergency Care of Ocular and Periocular Injuries.

Clinical pathological conferences will be held Thursday and Friday at 1 p. m. The annual reception and banquet will take place at the Northern Hotel, Thursday, 6:30 p. m., with Dr. Everett H. Lindstrom, Helena, as toastmaster. Mr. Robert B. Richardson, Helena, president, Western Life Insurance Company, will deliver an address on "The Penalty of Prominence." Friday evening the Yellowstone Valley Medical Society, under the presidency of Dr. Edward W. Gibbs, will be host to all members and guests of the association at a reception, 7-9 p. m., at the Yellowstone Country Club, 1701 Rimrock Road, Billings.

NEW YORK

Course on Glaucoma.—A course on glaucoma with particular emphasis on gonioscopy and study of the anterior angle will be given at the Brooklyn Eye and Ear Hospital, Nov. 16-18, by Dr. Daniel Kravitz and staff. Application and the fee of $40 for registration by ophthalmologists may be addressed to Dr. Daniel Kravitz, Brooklyn Eye and Ear Hospital, 20 Greene Ave., Brooklyn 38.

Cancer Meeting at Rochester.—During postgraduate day at the Rochester General Hospital, Sept. 17, the morning sessions will be devoted to clinics on the various types of tumors and the afternoon to a symposium on the nonsurgical treatment of neoplastic diseases by a panel from Memorial Center for Cancer and Allied Diseases, New York. Dr. Joseph E. Rall will discuss "Use of Radioactive Isotopes in the Treatment of Cancer" and Dr. George C. Escher "Hormonal Therapy in Neoplastic Disease." This course is sponsored by the New York State Department of Health, the New York State Medical Society, the New York State Academy of General Practice, and the Rochester Regional Hospital Council.

New York City

Course in Radiological Safety.—A 15 week course in radiological safety, beginning Sept. 23, is offered by the department of industrial medicine, Post-Graduate Medical School of New York University-Bellevue Medical Center, in cooperation with the U. S. Atomic Energy Commission and New York University College of Engineering. The course will be held at the Institute of Industrial Medicine, 325 E. 38th St., Wednesdays, 4-6 p. m. It is designed to acquaint industrial hygienists, insurance engineers, health officials, safety engineers, industrial physicians, and users of radioisotopes and x-ray equipment with the fundamentals of radiation safety. A laboratory course, 7-10 p. m., to run concurrently for a limited number of those taking the lecture course, will permit practical work with survey and monitoring instruments in evaluating radiation hazards. Tuition for each course is $60. For information, address: Office of the Dean, New York University Post-Graduate Medical School, 477 1st Ave., New York 16.

Dr. Day Named Professor at State University.—Dr. Richard L. Day, associate professor of pediatrics at Columbia University College of Physicians and Surgeons, will become chairman of the department of pediatrics at the State University of New York College of Medicine at Brooklyn, Dec. 1. He will be the first full-time professor of pediatrics on the college staff. Dr. Charles A. Weymuller, who has been professor and chairman of the department on a part-time basis since 1936, will continue as full professor on a part-time basis. Dr. Day has been affiliated with the Hartford (Conn.) Hospital and Babies and Willard Parker hospitals in New York City. He was instructor in pediatrics, Cornell University Medical College, and instructor in diseases of children, assistant and associate professor of pediatrics at Columbia University College of Physicians and Surgeons. He also served for three years as research assistant in maternal and child health to the Children's Bureau in Washington, D. C., and for two years during the war as physiologist of the U. S. Army Climatic Research Laboratory in Lawrence, Mass.

PENNSYLVANIA

State Medical Meeting in Pittsburgh.—The annual meeting of the Medical Society of the State of Pennsylvania will be held at the Hotel William Penn, Pittsburgh, Sept. 22-25, under the presidency of Dr. Theodore R. Fetter, Philadelphia. Out-of-state speakers include:

Mr. Henry C. Black, Battle Creek, Mich., Business Management of Medical Practice.
Brian B. Blades, Washington, D. C., Diagnosis and Criteria of Operability of Bronchogenic Carcinoma.
William S. McCann, Rochester, N. Y., Fundamentals of Cardiorespiratory Physiology in Reference to Differential Diagnosis and Treatment of Dyspnea.
Claude S. Beck, Cleveland, Cardiac Arrest and Resuscitation.
Carl P. Huber, Indianapolis, Management of Abortion.
Roger B. Scott, Cleveland, Treatment of External Endometriosis.
Frank W. Konzelmann, Washington, D. C., Selection and Interpretation of Liver Function Tests.
Herbert Z. Lund, Greensboro, N. C., Malignant Dermatological Lesions.
John A. Campbell Colston, Baltimore, Frequency of Cancer of the Prostate.
Robert M. McAllister, Camden, N. J., Diagnosis and Management of Poliomyelitis.
Nathan B. Talbot, Boston, Use and Misuse of Cortisone in Infancy and Childhood.

At the annual state dinner in the Pittsburgh Room, Tuesday 7 p. m., Dr. James L. Whitehill, Rochester, will be installed as the 104th president, and the Benjamin Rush Awards, poster contest prizes, and certificates to Graduate Education Institute enrollees will be presented. The president's reception and dance will be held Wednesday at 9 p. m. Various alumni dinners have been scheduled for Thursday. The Pittsburgh women physicians have arranged a luncheon for Thursday at 12 noon in the Duquesne Club, 325 6th Ave. All women physicians attending the annual session are cordially invited. Tickets ($4.50) may be purchased from Dr. Dorothy K. Nash, 4136 Bigelow Blvd., Pittsburgh 13. The Woman's Auxiliary will meet at the Roosevelt Hotel, Sept. 21-25.

UTAH

State Medical Meeting and Rocky Mountain Conference.—The 58th annual meeting of the Utah State Medical Association and the 7th biennial Rocky Mountain Medical Conference will be held at the University of Utah, Salt Lake City, Sept. 10-12. The address of welcome will be delivered by Dr. Kenneth B. Castleton, Salt Lake City, president, Utah State Medical Association. Dr. Edward J. McCormick, Toledo, Ohio, President of the American Medical Association, will address the annual banquet at the Hotel Utah, Friday, 7:30 p. m., on "The Future of Medicine." His talk will be followed by a motion picture, "The Florida Everglades," presented by Dr. Russell G. Frazier, Salt Lake City. A social hour at the Alta Club will precede the banquet. Guest speakers for the scientific sessions and their first presentations include:

Edwin H. Ellison, Columbus, Ohio, Management of Intestinal Obstruction.
Priscilla White, Boston, Diabetes in Pregnancy.
James T. Priestley, Rochester, Minn., Surgical Lesions of the Adrenal Glands.
Meyer A. Rabinowitz, Brooklyn, Precordial Pain—Its Causes and Differential Diagnosis.
M. Digby Leigh, Vancouver, B. C., Emergency Complications of Anesthesia and Their Management.
Alexander D. Langmuir, Atlanta, Ga., The Changing Panorama of Medical Care and Its Implications in Medical Education.

Round-table discussions will follow luncheon Thursday and Friday. Color television clinics will be presented Thursday and Friday afternoons and Saturday morning, and on Friday at 8:45 a. m. there will be a color television chest panel. A social hour, 6:30 p. m., will precede the stag dinner for members of the Rocky Mountain Medical Conference and University of Utah Medical Alumni, which will be held Thursday at the Aviation Club.

VERMONT

Personal.—Dr. John P. J. Cummins was initiated recently into Alpha Omega Alpha, national honorary medical society. He was elected as a physician who typifies attributes of the "ideal general practitioner." Dr. Cummins and two sons, who are also graduates of the University of Vermont College of Medicine, Burlington, practice in Ticonderoga, N. Y.——Dr. Delbert D. Griffith, Bristol, who graduated from the University of Vermont College of Medicine, Burlington, June 14, received one of the five national $1,000 scholarship awards given annually by the Mead Johnson Company to a graduating senior, to enable him to take a year of general practice residency following internship.

Meetings on Cardiology.—A cardiovascular symposium, sponsored by the Vermont Heart Association in cooperation with the New Hampshire Heart Association and the University of Vermont College of Medicine, Burlington, will be held at Oakledge Manor, Burlington, Sept. 8-10. Guest speakers from the United States include Dr. Irvine H. Page, Cleveland (Neural and Hormonal Control of the Blood Vessels) and Dr. Henry A. Schroeder, St. Louis (Control of Hypertension). Registration fee, $2; no fee for members of the New Hampshire and Vermont heart associations, students, residents, and interns of New Hampshire and Vermont hospitals. For information write to Dr. Wilhelm Raab, University of Vermont College of Medicine, Burlington (Tel. 3-3451, ext. 33; 4-4511, ext. 349; or 3-3886).

Two cardiology seminars, both arranged by the division of experimental medicine, University of Vermont College of Medicine, and sponsored by the Vermont Heart Association, will be held Sept. 10-12. The seminar on "Hormones and Nerves in Cardiac Pathology and Therapy," conducted by Dr. Wilhelm Raab, professor of experimental medicine, University of Vermont College of Medicine, Burlington, will have as guest speaker Dr. Irvine H. Page. The following program will be presented:

Thursday, Medical College, Hall A, 2-5 p.m., Hormonal and Neurohormonal Influences on the Vascular System and on Myocardial Metabolism.
Friday, Medical College, Hall A, 8-10 p.m., Neurohormonal Pathogenesis and Treatment of Angina Pectoris and of Cardiogenic Shock.
Saturday, Bishop DeGoesbriand Hospital, Auditorium, 1:30-3 p.m., Hormonal Factors in the Origin and Treatment of Congestive Heart Failure.

The seminar on electrocardiography, conducted by Dr. Eugene Lepeschkin, associate professor of experimental medicine, University of Vermont, will have as guest speakers Dr. Charles E. Kossmann, associate professor, New York University College of Medicine, and Dr. Harold D. Levine, assistant clinical professor, Harvard Medical School, Boston. "The Normal Electrocardiogram and Its Limits" will be discussed Thursday, 8-10:30 p. m., and Friday, 8:30 a. m. to 12 noon. Discussions on "The Electrocardiographic Diagnosis of Myocardial Infarction" will be held Saturday, 8:30 a. m. to 12 noon and 8:30-10:30 p. m. Part of the afternoon will be kept free for inspection of the local hospitals and for sight-seeing trips on Lake Champlain and in the Green Mountains. Registration fees: seminar on hormones, etc., $5; seminar on electrocardiography, $10. No registration fees will be required of faculty and students of the University of Vermont and of residents and interns of Vermont hospitals.

WASHINGTON

State Medical Meeting in Seattle.—The annual meeting of the Washington State Medical Association will be held at the Olympic Hotel, Seattle, Sept. 13-16. Dr. Charles E. Watts, Seattle, will deliver the presidential address Tuesday, 11 a. m., in the Olympic Bowl. Dr. Frank E. Wilson, Director, A. M. A. Washington, D. C., office, will give a "Purview of Federal Medical Legislation." Guest speakers for the scientific sessions include:

Chester M. Jones, Boston, Trigger Mechanisms and Digestive Tract Symptoms.
Paul W. Schafer, Kansas City, Kan., Clinical Problem of Lung Cancer.
Alfred E. Maumenee, San Francisco, Recent Concepts of the Etiology and Treatment of Glaucoma.
C. Frederick Ferciot, Lincoln, Neb., Congenital Foot Conditions in Children.

On Tuesday morning, the ear, nose, and throat section will present a panel discussion on "The Cleft Palate and Harelip Problem." Wednesday, 2 p. m., a symposium on endocrinology will be held, with Dr. Robert H. Williams, Seattle, as moderator. At 2:50 p. m., a panel discussion on "Clinical Endocrinology" will be presented by Drs. Carl G. Heller, Portland, Ore., and Lester J. Palmer, John Bakke, and Robert H. Williams, Seattle. On Sunday at 6 p. m., there will be a no-host family dinner, honoring 50 year practitioners. Monday the Salmon Fishing Derby will start at Ray's Boathouse, at 5:45 a. m. The golf tournament will begin at the Seattle Golf and Country Club at 7:30 a. m. Tuesday noon the general practitioners' luncheon will be held in the Georgian Room, and the Washington State Medical Association Civil Defense Committee will meet in the Olympic Bowl. The annual banquet and ball, preceded by refreshments in the Olympic Bowl, 6:30 p. m., will be held in the Georgian Room (dress is optional). The Washington State Medical Association will be host for a public relations luncheon Wednesday, at which Dr. George F. Lull, Secretary and General Manager, will discuss "You and Your A. M. A.," and Mr. Rollen Watterson, executive secretary, Alameda-Contra Costa (Calif.) Medical Association, will speak on "Fundamentals of Public Relations for a Medical Society." The reception for new presidents, 6:30 p. m., Junior Ballroom, will honor Dr. Alvia G. Young, Wenatchee, Washington State Medical Association president, and Mrs. A. George Hanson, Seattle, auxiliary president.

WEST VIRGINIA

Meeting on Tuberculosis.—The annual meeting of the West Virginia Tuberculosis and Health Association will be held at the Hotel Fairmont in Fairmont, Sept. 9-10, in cooperation with the West Virginia Conference of Tuberculosis Workers, the West Virginia Trudeau Society, and the medical section of the West Virginia Tuberculosis and Health Association. Wednesday afternoon the West Virginia Trudeau Society will present the following program:

Ambulant Treatment of Tuberculosis with Drugs, Julius L. Wilson, Philadelphia.
Management of Chronic Cough, Edward Lebovitz, Pittsburgh.
Present Day Surgical Concept of the Treatment of Pulmonary Tuberculosis, Haven M. Perkins, Charleston.
X-Ray Symposium on Chest Diseases, Rupert W. Powell, Fairmont.

Dr. George F. Evans, Clarksburg, program chairman, urges all physicians who wish to have films reviewed, to have them at the conference. The general session of the West Virginia Tuberculosis and Health Association Thursday morning will include papers on "Nutrition in Tuberculosis Control" and "The Value of a Chest X-Ray for All Admissions to a General Hospital." The scientific session will close with an address by Mr. W. C. Handlan, Fairmont, director of advertising and publicity, Monongahela Power Company, whose subject will be "Public Relations Per Se."

WISCONSIN

Hearing Problems in Industry.—Clinics on hearing conservation in industry will be held in Wausau, Sept. 10, Oshkosh, Sept. 24, and Racine, Oct. 14, under the auspices of the Wisconsin Council of Safety, State Medical Society of Wisconsin, Wisconsin State Board of Health, Wisconsin Manufacturers Association, and the Wisconsin State Nurses Association. "Hearing Problems in Relation to Industrial Noise Exposure" will be discussed at Wausau by Dr. Aram Glorig Jr., Washington, D. C., and at Oshkosh and Racine by D. E. Wheeler, Ph.D., Los Angeles. Participants in a panel on "Responsibilities of Physicians and Nurses in an Industrial Hearing Conservative Program" will be Drs. Thomas L. Tolan, Meyer S. Fox, and Paul T. Whitaker, and Miss Ruth Martineau, R.N., all of Milwaukee. Registration may be arranged through the Wisconsin Council of Safety, State Office Building, Madison. The $5 fee includes luncheon.

GENERAL

Psychiatric Meeting in Kansas City.—The Mid-Continent Psychiatric Association, a district branch of the American Psychiatric Association, will meet at the Hotel President in Kansas City, Mo., Sept. 26-27. All interested members of the profession are invited. There is no registration fee. Among the speakers will be Drs. Kenneth E. Appel, Philadelphia, Daniel Blain, Washington, D. C., Lloyd J. Thompson, Winston-Salem, N. C., and Neville Murray, Galveston, Texas.

Fellowships for Basic Research in Arthritis.—The Arthritis and Rheumatism Foundation offers the following research fellowships in the basic sciences related to arthritis: (1) predoctoral fellowships, ranging from $1,500 to $3,000 per annum, depending on the family responsibilities of the fellow, tenable for one year with prospect of renewal; (2) postdoctoral fellowships, ranging from $3,000 to $6,000 per annum, depending on family responsibilities, tenable for one year with prospect of renewal; (3) senior fellowships for experienced investigation, carrying an award of $6,000 to $7,500 per annum and tenable for five years. Deadline for applications is Nov. 1. Applications will be reviewed and awards made by Feb. 15, 1954. For information address the Medical Director, Arthritis and Rheumatism Foundation, 23 W. 45th St., New York 36.

Roentgen Ray Society Meeting in Cincinnati.—The annual meeting of the American Roentgen Ray Society will be held at the Netherland Plaza Hotel, Cincinnati, Sept. 29 to Oct. 2. The meeting will be called to order at 8:30 a. m. by Dr. Charles L. Martin, Dallas, Texas, president. After an address of welcome by Dr. Stanley E. Dorst, dean, University of Cincinnati College of Medicine, the president-elect, Dr. Harry M. Weber, Rochester, Minn., will be installed in office and will deliver the inaugural address. Dr. David G. Pugh, Rochester, Minn., will serve as moderator for a symposium, "A Practical Consideration of Mitral Stenosis," Tuesday morning. Tuesday evening Dr. Paul C. Hodges, professor of radiology, University of Chicago School of Medicine, will deliver the Caldwell lecture on "Normal Bone, Diseased Bone, Dead Bone." Wednesday morning there will be a symposium on radiation protection, with Dr. Andrew H. Dowdy, Los Angeles, as moderator.

Surgeons Meeting in New York.—The annual congress of the United States and Canadian sections of the International College of Surgeons will be held at the Waldorf-Astoria in New York Sept. 13-17. Dr. William R. Lovelace, Albuquerque, N. Mex., is president of the United States section, and Dr. Douglas U. McGregor, *Hamilton, Ontario, president* of the Canadian section. The Monday morning session will be on "Advances in the Treatment of Cancer." Participants will include Drs. Charles S. Cameron, Cornelius P. Rhoads, and George N. Papanicolaou, New York. In other general assemblies, advances will be discussed in the treatment of cardiopulmonary diseases, thyroid surgery, surgery of stomach and intestines, surgical treatment of diseases of the esophagus, vascular surgery, and intervertebral disk lesions. A film forum will be held Monday evening, a forum on pharmacology in surgery Tuesday evening, the annual banquet Wednesday evening, and the annual convocation in Carnegie Hall on Thursday.

Obstetricians, Gynecologists, and Abdominal Surgeons.—The annual meeting of the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons will be held at the Homestead, Hot Springs, Va., Sept. 10-12, under the presidency of Dr. Nicholson J. Eastman, Baltimore. Speakers by invitation include:

John C. Ullery, Philadelphia, Management of Pregnancy in Heart Disease.

William N. Thornton Jr., Charlottesville, Va., Late Urinary System Complications Following Radical Hysterectomy for Carcinoma of the Cervix.

Louis M. Hellman, Brooklyn, Factors Influencing the Occurrence of and Changes in the Reserve Cell in the Human Cervix.

W. Nicholson Jones, Birmingham, Ala., Role of Antibiotics in Management of Incomplete Abortions.

Ronald R. Greene, Chicago, Papillomatous Lesions of the Cervix.

Discussants by invitation will be Prof. John F. Cunningham, Dublin, Ireland, William K. Strother Jr., Dallas, Texas, William J. Dieckmann, Chicago, and Dr. Axel N. Arneson, St. Louis. The Joseph Price orator, Dr. Gordon King, professor of obstetrics and gynecology, Hong Kong University, will speak on "Advanced Extrauterine Pregnancy."

Tri-State Obstetric Seminar.—The maternal welfare committee of the Florida Medical Association and the bureaus of maternal and child health of South Carolina, Georgia, and Florida will sponsor an obstetric seminar at the Sheraton Beach Hotel, Daytona Beach, Fla., Sept. 14-16. Dr. Eugene F. McCall, Jacksonville, will serve as moderator for a discussion on "Maternal and Fetal Mortality Trends in South Carolina, Georgia, and Florida" by representatives from the state health departments and state medical associations. Dr. Hugh A. Carithers, Jacksonville, will speak on "Care of the Premature and Newborn Infant." Out-of-state speakers will present the following program:

Anesthesia and Analgesia in Obstetrics, John Adriani, New Orleans, or William H. Galvin Jr., Emory University, Ga.

Heart Disease in Pregnancy, Charles A. Poindexter, New York.

Caesarian Section, M. Edward Davis, Chicago.

Management of Prolonged Labor—Induction of Labor, Duncan E. Reid, Boston.

Abnormal Presentations and Forceps Delivery, Allan C. Barnes, Columbus, Ohio.

Bleeding in Pregnancy, Carl P. Huber, Indianapolis.

Care of the Premature and Newborn Infant, Robert B. Lawson, Winston-Salem, N. C.

Erythroblastosis—Resuscitation of the Newborn, Edith L. Potter, Chicago.

Mississippi Valley Medical Meeting.—The annual meeting of the Mississippi Valley Medical Society will be held at the Elks Club, Springfield, Ill., Sept. 23-25, under the presidency of Dr. John I. Marker, Davenport, Iowa. On Wednesday Dr. John A. Saxton, St. Louis, will serve as moderator for a clinical pathological conference. Thursday there will be a panel on diabetes, with Dr. Robert M. Kark, Chicago, as moderator. Dr. Alphonse McMahon, St. Louis, will be moderator for the noon round-table luncheon. The informal evening fellowship hour, banquet, and entertainment will be held Thursday. Dr. Melvin A. Casberg, Washington, D. C., assistant secretary of defense (health and medical), will speak on "The Health Professions and National Defense." Dr. Willis I. Lewis, *Herrin, Ill., president of the Illinois State Medical* Society, and Dr. E. Claude Bohrer, West Plains, Mo., president of the Missouri State Medical Association, will also address the evening meeting. Dr. Arthur H. Keeney, Louisville, winner of the first prize in the 1953 Mississippi Valley Medical Society essay contest, will read his paper on "Grass Roots in the Prevention of Blindness," and Dr. Robert L. Sanders, *Memphis, Tenn., honor award recipient, will present* "Gallbladder and Duct Problems, Medical and Surgical Aspects" (lantern slides). Dr. Walter R. Bett, London, England, will discuss "Medical History in Eponyms." Dr. William A. Bloom, Fayette, Mo., past president of the Missouri State Medical Association, will serve as moderator for the round-table luncheon on Friday and Dr. Daniel L. Sexton, St. Louis, as moderator of a panel, "What's New in Medicine and Surgery." There is no registration fee. For information, write to Dr. Harold Swanberg, secretary, 209-224 W.C.U. Bldg., Quincy, Ill.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

	Aug. 22, 1953		
Area	Paralytic Type	Total Cases Reported	Aug. 23, 1952 Total
New England States			
Maine	20	40	15
New Hampshire	..	6	2
Vermont	5	6	..
Massachusetts	14	31	54
Rhode Island	9	18	1
Connecticut	2	20	41
Middle Atlantic States			
New York	53	75	209
New Jersey	28	59	59
Pennsylvania	..	62	92
East North Central States			
Ohio	36	207	203
Indiana	..	44	79
Illinois	42	195	269
	67	212	300
	..	49	127
West North Central States			
Minnesota	57	193	219
Iowa	14	64	246
Missouri	11	35	84
North Dakota	4	14	16
South Dakota	..	12	81
Nebraska	4	13	168
Kansas	14	33	101
South Atlantic States			
Delaware	..	4	13
	19	41	11
	3	3	15
Virginia	16	64	58
West Virginia	13	27	46
North Carolina	19	54	27
South Carolina	6	13	7
Georgia	7	17	43
Florida	7	12	23
East South Central States			
	2	13	119
	16	39	38
	9	16	15
	..	13	61
West South Central States			
Arkansas	12	17	18
Louisiana	6	16	45
Oklahoma	4	29	75
Texas	15	68	162
Mountain States			
Montana	7	15	11
Idaho	..	3	19
Wyoming	4	7	5
Colorado	8	15	36
New Mexico	..	5	29
Arizona	16	53	23
Utah	..	3	10
Nevada	..	4	1
Pacific States			
Washington	..	12	81
Oregon	8	10	23
California	91	192	121
Territories and Possessions			
Alaska	..	..	..
Hawaii	..	..	1
Puerto Rico	..	..	2
Total	668	2,253	3,504

LATIN AMERICA

Pediatric Meetings.—The seventh International Congress of Pediatrics will be held Oct. 12-17 in Havana, Cuba, immediately after the annual meeting of the American Academy of Pediatrics in Miami, Fla., Oct. 6-9. The main topics will be "Epilepsy in Infancy and Childhood," "Diagnosis of Congenital Malformations of the Heart and Great Vessels Susceptible of Surgical Treatment," "Problems of the Premature Infant," "Complications of Primary Tuberculosis," and "Metabolism and Nutritional Problems." Round-table discussions will be held on the following topics: BCG vaccination, nephrosis in children, bacteriology in infantile diarrhea, antibiotics, virus diseases, neoplastic diseases, problems of hematology, pediatric surgery, and pediatric endocrinology. Among the physicians who will participate in the program are Drs. Irvine McQuarrie, Minneapolis, William G. Lennox, Boston, Meyer A. Perlstein, Chicago, Stanley Gibson, Chicago, Helen B. Taussig, Baltimore, Benjamin M. Gasul, Chicago, Clement A. Smith, Boston, Edith H. Lincoln, New York, Paul Gyorgy, Philadelphia, Daniel C. Darrow, New Haven, Conn., Henry G. Poncher, Chicago, Joseph Stokes, Philadelphia, Sidney Farber, Boston, and Louis K. Diamond, Boston. Communications should be addressed to: The Secretaries, Symposium on Child Health, division of medicine, University College of the West Indies, Jamaica, B. W. I.

FOREIGN

Congress of Medicine in France.—The French Congress of Medicine at Paris Oct. 15-17 will be devoted to discussions on arterial hypertension, hypersplenism, and other subjects. Information may be obtained from the Bureau des Voyages Pratiques Exprinter, 26, Avenue de l'Opera, Paris 1.

Institute for Pharmacology.—The 20th meeting of the German Institute for Pharmacology (located in Dusseldorf) will be held in Bonn, Oct. 4-7. Topics for discussion will be "New Methods of Stabilizing the Nervous System and the Metabolism" and "Blood Coagulation." Information may be obtained from Prof. H. F. Zipf, secretary of the Pharmacological Institute, Reuterstr. 2 b, Bonn, Germany.

Meeting on Blood Transfusion.—The International Blood Transfusion Society will hold its transfusion days, Sept. 12-13, at the Transfusion Centre, Geneva, Switzerland. On Saturday there will be a symposium on "Plasma Substitutes" and on Sunday a symposium on "New Concepts of Pharmacodynamics of the Shock (So-Called Refrigeration)." For information apply to the Centre de Transfusion Sanguine, Hôpital Cantonal, Geneva.

Cobalt Bomb for Italy.—The first Canadian-made "cobalt bomb" to help fight cancer in Europe, which was recently exhibited at the International Congress of Radiology in Copenhagen, Denmark, has been sent for installation to a hospital in Trento, Italy. It is reported that the cost of importing slightly more than one ounce of radioactive cobalt and the 22 tons of protective and control machinery that accompanied it was 67 million lire ($107,000). The American Mutual Security Agency contributed nearly half the cost, and Italian authorities and public subscriptions paid the rest.

Congress of Otorhinolaryngology.—The 51st French Congress of Otorhinolaryngology will hold its session at the Faculty of Medicine of Paris, Oct. 26-29 under the presidency of Dr. Louis Leroux of Paris, with Prof. Leon Binet, dean of the Faculty of Medicine of Paris, as honorary president. Topics for discussion include "Present Facts of the Physiology of Hearing and Their Clinical and Surgical Applications" and "New Acquisitions of Radio-otology." During the congress, morning operative sessions will be held at various hospitals. For information address: Dr. Henri Flurin, Cauterets, or Dr. Henry Guillon, 6, Ave MacMahon, Paris (7e).

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Clinical Meeting, St. Louis, Dec. 1-4.

1954 Annual Meeting, San Francisco, June 21-25.

1954 Clinical Meeting, Miami, Florida, Nov. 30-Dec. 3.

1955 Annual Meeting, Atlantic City, N. J., June 6-10.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Sept. 30-Oct. 2. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago 10, Director.

American Academy for Cerebral Palsy, Western Hills Hotel, Fort Worth, Texas, Oct. 30-31. Dr. Harry E. Barnett, 116 S. Michigan Blvd., Chicago 3, Secretary.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 12-16. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

American Academy of Pediatrics, Municipal Auditorium, Miami, Fla., Oct. 6-9. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Secretary.

American Association of Blood Banks, LaSalle Hotel, Chicago, Oct. 17-20. Miss Marjorie Saunders, 3500 Gaston Ave., Dallas 4, Texas, Secretary.

American Association of Medical Clinics, Congress Hotel, Chicago, Oct. 9-11. Dr. Edwin P. Jordan, P. O. Box 114, Charlottesville, Va., Executive Director.

American Association of Medical Record Librarians, Palace Hotel, San Francisco, Oct. 5-9. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, The Homestead, Hot Springs, Va., Sept. 10-12. Dr. William F. Mengert, 2211 Oak Lawn Ave., Dallas, Texas, Secretary.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 1-3. Dr. James K. Stack, 700 North Michigan Blvd., Chicago, Secretary.

American College of Surgeons, Conrad Hilton Hotel, Chicago, Oct. 5-9 Dr. Michael L. Mason, 40 East Erie St., Chicago, Secretary.

American Dental Association, Cleveland, Sept. 28-Oct. 1. Dr. Harold Hillenbrand, 222 E. Superior St., Chicago 11, General Secretary.

American Fracture Association, Mission Inn, Riverside, Calif., Oct. 12-15 Dr. H. W. Wellmerling, 120 S. LaSalle St., Chicago 3, Secretary.

American Medical Writers' Association, Elk's Club, Springfield, Ill., Sept. 23. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

American Roentgen Ray Society, Netherland Plaza, Cincinnati, Sept. 29-Oct. 2. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

American Society of Anesthesiologists, Olympic Hotel, Seattle, Oct. 6-9. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago, Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicago, Oct. 12-16. Dr. Clyde G. Culbertson, 1040 W. Michigan St., Indianapolis, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Fall Meeting, Yale University, New Haven, Conn., Sept. 7-9. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

Association of American Medical Colleges, Hotel Claridge, Atlantic City, N. J., Oct. 26-28. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of Life Insurance Medical Directors of America, Hotel Statler, New York, Oct. 14-16. Dr. Henry B. Kirkland, P. O. Box 594, Newark 1, N. J., Secretary.

Association of Medical Illustrators, Sheraton Hotel, Baltimore, Oct. 5-7. Miss Evelyn J. Erickson, 1512 St. Antoine St., Detroit 26, Secretary.

Central Neuropsychiatric Association, Claypool Hotel, Indianapolis, Oct. 15-17. Dr. Hamilton Ford, 112 North Blvd., Galveston, Texas, Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 12-16. Dr. Harry P. Smith, 203 N. Wabash Ave., Chicago 1, Secretary.

Colorado State Medical Society, Shirley-Savoy Hotel, Denver, Sept. 29-Oct. 2. Mr. Harvey T. Stethman, 835 Republic Bldg., Denver 2, Executive Secretary.

Constantinian Society, Battery Park Hotel, Asheville, N. C., Oct. 18-21. Dr. C. F. Shook, Medical Director, Owens-Illinois Glass Company, Toledo 1, Ohio, Secretary.

Delaware, Medical Society of, Hotel du Pont, Wilmington, Oct. 12-14. Dr. Andrew M. Gehret, 822 North American Bldg., Secretary.

District of Columbia, Medical Society of the, *Hotel Statler*, Washington, Oct. 5-7. Mr. Theodore Wiprud, 1718 M St. N.W., Washington 6, Secretary.

Gulf Coast Clinical Society, Admiral Semmes Hotel, Mobile, Ala., Oct. 15-16. Dr. William J. Atkinson Jr., 1217 Government St., Mobile 20, Ala., Secretary.

Gulf Coast Conference on Industrial Health, Shamrock Hotel, Houston, Tex., Oct. 1-3. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Tex., Co-Chairman.

Indiana State Medical Association, French Lick, Oct. 19-21. Mr. James A. Waggener, 23 E. Ohio St., Indianapolis 4, Executive Secretary.

Kansas City Southwest Clinical Society, Kansas City, Mo., Sept. 28-Oct. 1. Dr. W. H. Algie, 825 North 7th Street, Kansas City, Kans., Secretary.

Kentucky State Medical Association, Brown Hotel, Louisville, Sept. 22-24. Dr. Bruce Underwood, 620 South Third St., Louisville 2, Secretary.

Michigan State Medical Society, Pantlind Hotel and Civic Auditorium, Grand Rapids, Sept. 23-25. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Secretary.

Midwestern Section of American Federation for Clinical Research, Congress Hotel, Chicago, Oct. 29. Dr. Robert J. Glaser, 600 S. Kingshighway Blvd., St. Louis 10, Secretary.

Mississippi Valley Medical Society, Springfield, Ill., Sept. 23-25. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Montana Medical Association, Northern Hotel, Billings, Sept. 17-20. Mr. L. R Hegland, 104 North Broadway, Billings, Executive Secretary.

National Gastroenterological Association, Hotel Biltmore, Los Angeles, Oct. 12-17. Dr. A. Xerxes Rossien, 1819 Broadway, New York 23, Secretary.

Neurosurgical Society of America, The Broadmoor, Colorado Springs, Colo., Sept. 23-27. Dr. C. D. Hawkes, 22 North Manassas St., Memphis 5, Tenn., Secretary.

Nevada State Medical Association, Carter Hotel, Elko, Sept. 24-26. Dr. William A. O'Brien III, 505 Chestnut St., Reno, Secretary.

New England Obstetrical and Gynecological Society, Hotel Somerset, Boston, Oct. 28. Dr. Carmi R. Alden, 270 Commonwealth Ave., Boston, Secretary.

New Hampshire Medical Society, Equinox House, Manchester, Vt., Oct. 4-6. Dr. Deering G. Smith, 44 Chester St., Nashua, Secretary.

North Pacific Society of Internal Medicine, Harrison, B. C., Canada, Sept. 18-19. Dr. Clarence C. Pearson, 1115 Terry Ave., Seattle 1, Wash., Secretary.

North Texas-Southern Oklahoma Fall Clinical Conference, Wichita Falls, Texas, Sept. 16. *Dr. C. H. Wilson*, 1300 Eighth St., Wichita Falls, Texas, Secretary.

Oklahoma City Clinical Society, Oklahoma City, Oct. 26-29. Miss Alma F. O'Donnell, 512 Medical Arts Bldg., Oklahoma City 2, Executive Secretary.

Omaha Mid-West Clinical Society, Hotel Paxton, Omaha, Oct. 26-30. Miss Irene Rau, 1031 Medical Arts Bldg., Omaha 2, *Executive Secretary*.

Oregon State Medical Society, Heathman Hotel, Portland, Oct. 14-17. Dr. Charles E. Littlehales, 833 S.W. Eleventh Ave., Portland 5, Secretary.

Pennsylvania, Medical Society of the State of, William Penn Hotel, Pittsburgh, Sept. 21-24. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

Regional Meetings, American College of Physicians:

- North Dakota, Fargo, Sept. 12. Dr. Robert B. Radl, 221 Fifth St., Bismarck, Governor.
- Arkansas-Oklahoma, Tulsa, Okla., Sept. 19. Dr. Wann Langston, 117 North Broadway, Oklahoma City 2, Governor.
- Western New York, Syracuse, Oct. 9. Dr. E. C. *Reifenstein*, 109 South Warren St., Syracuse 2, Governor.
- Ohio, Dayton, Oct. 9. Dr. Charles A. Doan, Ohio State University College of Medicine, Columbus 10, Governor.
- Montana-Wyoming, Missoula, Mont., Oct. 9-10. Dr. Harold W. Gregg, 127 West Park Street, Butte, Mont., Governor.
- Southeastern—Cuba, Alabama, *Florida*, Georgia, *South Carolina*—St. Simons, Sea Island, Ga., Oct. 16-17. Dr. Carter Smith, 384 Peachtree St. N.E., Atlanta 3, Ga., Chairman.

South Central Branch, American Urological Association, Kansas City, Mo., Sept. 20-23. Dr. Rex E. Van Duzen, 721 Medical Arts Bldg., Dallas, Texas, Chairman.

Southern Medical Association, Municipal Auditorium, Atlanta, Ga., Oct. 26-29. Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham 3, Ala., Secretary.

Southwestern Medical Association, El Conquistador Hotel, Tucson, Ariz., Oct. 29-31. Dr. C. C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

Southwestern Surgical Congress, Hotel Utah, Salt Lake City, Sept. 21-23. Dr. C. R. Rountree, 1227 Classen St., Oklahoma City 3, Secretary.

Tennessee Valley Medical Assembly, Read House Hotel, Chattanooga, Sept. 28-29. Dr. William G. Stephenson, 612 Medical Arts Bldg., Chattanooga 3, President.

U. S. Chapter, International College of Surgeons, Waldorf-Astoria, New York, Sept. 13-17. Dr. Karl Meyer, 1516 Lake Shore Drive, Chicago 10, Secretary.

Utah State Medical *Association*, *Salt Lake City*, Sept. 10-12. Dr. Homer E. Smith, 42 South Fifth East St., Salt Lake City 2, Secretary.

Vermont State Medical Society, Equinox House, Manchester, Oct. 4-6. Dr. James P. Hammond, 542 Main St., Bennington, Secretary.

Virginia, Medical Society of, Hotel Roanoke, Roanoke, Oct. 18-21. Mr. Robert I. Howard, 1105 W. Franklin St., Richmond 20, Executive Secretary.

Washington State Medical Association, Olympic Hotel, Seattle, Sept. 13-16. Dr. Bruce Zimmerman, 338 White-Henry-Stuart Bldg., Seattle 1, Secretary.

Western Orthopedic Association, Sun Valley, Idaho, Oct. 5-8. Dr. Forrest L. Flashman, 1301 Spring St., Seattle 4, Secretary.

Wisconsin, State Medical Society of, Hotel Schroeder, Milwaukee, Oct. 5-7. Mr. Charles H. Crownhart, 704 East Gorham St., Madison 3, Secretary.

FOREIGN

Association of Surgeons of Great Britain and Ireland, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

Canadian Medical Association, Vancouver, B. C., Canada, June 18-22, 1954. Dr. T. C. Routley, 135 St. Clair Ave. W., Toronto 5, Ont., Canada, General Secretary.

Congress of International Anesthesia Research Society, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

Congress of the International Society of Angiology, Lisbon, Portugal, Sept. 18-20. Dr. Henry Haimovici, 105 East 90th St., New York 28, N. Y., U. S. A., Secretary.

Congress of the International Society of Surgery, Lisbon, Portugal, Sept. 14-20. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

Interim Meeting, Aero Medical Association, University of Brussels Medical School, Brussels, Belgium, Sept. 24-27. Dr. Andre Allard, Medical Director of SABENA, 145 Rue Royale, Brussels, Belgium, Secretary.

International Cancer Congress, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

International Conference on Thrombosis and Embolism, Basle, Switzerland, July 15-19, 1954 Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

International Congress of the European Society of Haematology, *Amsterdam*, Holland, Sept. 8-12. Dr. M. C. Verloop, Maliesingle 15, Utrecht, Holland, Secretary.

International Congress on Group Psychotherapy, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

International Congress of Hydroclimatism and Thalassotherapy, Dubrovnik, Yugoslavia, May 8-16, *1954. Prof. C. Plavsic, Zeleni Venac* 1, Belgrade, Yugoslavia, Secretary General.

International Congress of International College of Surgeons, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U.S.A., Secretary-General.

International Congress on Mental Health, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental *Health*, 111 St. George St., Toronto, Ontario, Canada.

International Congress of Microbiology, Rome, Italy, Sept 6-12. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

International Congress on Obstetrics and Gynecology, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

International Congress of Paediatrics, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba President.

International Congress of Psychology, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, *International Union* of Scientific Psychology, Eno Hall, Princeton *University*, *Princeton*, N. J., U. S. A.

International Congress for Psychotherapy, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

International Gerontological Congress, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

International Leprosy Congress, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

International Neurological Congress, Lisbon, Portugal, Sept. 7-12. Prof. Almeida Lima, Avenida do Brazil 53, Lisbon, Portugal, Secretary-General.

International Office of Documentation of Military Medicine, Rome, Italy, Oct. 14-18. Colonel Medecin Prof. A. Campana, Office of the Ministero della Difesa-Esercito, Rome, Italy, Secretary.

International Society for the Study of Biological Rhythms, Basle, Switzerland, Sept. 18-19. For information write: Prof. Dr. F. Georgi, Neurologische Universitats-Poliklinik, Socinstrasse 55, Basle, Switzerland.

Journees Medicales, Paris, France, April 21-25, 1954. For information write: *Secretariat of the Journees*, 12, *rue Pierre-Geofroix, Colombes* (Seine) France.

Latin American Congress of Obstetrics and Gynecology, Buenos Aires, Argentina, Oct. 26-31.

Latin American Congress of Otorhinolaryngology, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro Medico, Caracas, Venezuela, Secretary-General.

Pacific Science Congress, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, Mexico, D.F., *Mexico, Feb. 28-March 4, 1954.*

Pan American Medical Association, International Medical Cruise Congress, S. S. Nieuw Amsterdam, Jan. 6-22, 1954. Dr. Joseph J. Eller, 745 Fifth Avenue, New York 22, N. Y., U. S. A., Executive Director.

Pan American Medical Women's Alliance, Beckman Towers Hotel, New York, N. Y., Sept. 24-Oct. 1. Dr. Ina Marsh, 140 Linwood Ave., Buffalo, N. Y., U. S. A., Registration Chairman.

Persian Gulf Medical Society, Dhahran, Saudi Arabia, Dec. 7-8. Dr. N. J. Conan Jr., Department of Internal Medicine, Arabian American Oil Company, Dhahran, Saudi Arabia, Secretary.

Regional Meeting, American College of Physicians, San Juan, Puerto Rico, Oct. 15-17. Dr. R. Rodriquez-Molina, Veterans Administration Center, San Juan, Puerto Rico, Governor.

Sectional Meeting, American College of Surgeons, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

World Congress of the World Confederation for Physical Therapy, London, England, Sept. 7-12. Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C.1, *England, Secretary.*

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 22-24, 1954. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery.

Alaska:* Anchorage and Juneau, Sept. 7. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Arizona:* *Examination.* Phoenix, Oct. 22-23. *Endorsement.* Phoenix, Oct. 24. Executive Secretary, Mr. Robert Carpenter, 401 Security Bldg., Phoenix.

Arkansas:* *Examination.* Little Rock, Nov. 5-6. Sec., Dr. Joe Verser, Harrisburg.

Colorado:* *Reciprocity.* Denver, Oct. 13. Final date for filing application is Sept. 14. *Examination.* Denver, Dec. 15-16. Final date for filing application is Nov. 14. Executive Secretary, Miss Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

Connecticut:* *Regular. Examination.* New Haven, Nov. 10-11. Reciprocity actions are taken continuously. Secretary to the Board, Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, Nov. 10-11. *Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.*

Delaware: Dover, Jan. 12-14, 1954. Sec., Dr. Joseph S. McDaniel, 229 South State St., Dover.

District of Columbia:* *Reciprocity.* Washington, Sept. 14. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

Florida:* *Examination.* Jacksonville, Nov. 22-24. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami 36.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Director of Medical Services, Guam Memorial Hospital, Agana.

Idaho: Boise, Jan. 11-13, 1954. Executive Secretary, Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: Chicago, Oct. 6-8. Superintendent of Registration, Mr. Fredric B. Selcke, State House, Springfield.

Iowa:* *Examination.* Des Moines, Dec. 7-9. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Topeka, Dec. 9-10. Sec., Dr. O. W. Davidson, 864 New Brotherhood Bldg., Kansas City.

Maine: Portland, Nov. 12-13. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

Maryland: *Examination.* Baltimore, Dec. 8-11. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore 1.

Michigan:* *Examination.* Lansing, Oct. 14-16. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing 8.

Minnesota:* Minneapolis, Oct. 20-22. Sec., Dr. E. M. Jones, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity.* Jackson, December. Assistant Secretary, Dr. R. Whitfield, Old Capitol, Jackson 113.

Missouri: Kansas City, Oct. 22-24. Ex. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

Montana: Helena, Oct 5. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

Nebraska:* *Examination.* Omaha, June 1954. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada:* Reno, Oct. 6. Sec., Dr. George H. Ross, 112 Curry St., Carson City.

New Hampshire: Concord, Sept. 9. Sec., Dr. John S. Wheeler, 107 State House, Concord

New Jersey: *Examination.* Trenton, Oct. 20-23. Sec., Dr. E. S. Hallinger, *28 W. State St., Trenton.*

New Mexico:* Oct. 12-13, Santa Fe. Sec., R. C. Derbyshire, 227 E. Palace Ave., Sante Fe.

New York: *Examination.* New York, Syracuse, Buffalo and Albany, Oct. 6-9. Sec., Dr. Stiles D. Ezell, 23 South Pearl St., Albany.

North Carolina: *Reciprocity.* Asheville, Oct. 12. Sec., Dr. Joseph J. Combs, 716 Professional Bldg., Raleigh.

North Dakota: *Examination.* Grand Forks, Jan. 6-9, 1954. *Reciprocity.* Grand Forks, Jan. 9. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Examination.* Columbus, December. *Reciprocity.* Columbus, Oct. 6. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

Oregon:* *Reciprocity.* Portland, Oct. 16-17. Sec., Dr. Wilmot C. Foster, 609 Failing Bldg., Portland 4.

Pennsylvania: *Examination.* Philadelphia, January 1954. Acting Secretary, Mrs. Margaret G. Steiner, Box 911, Harrisburg.

Rhode Island:* *Examination.* Providence, Oct. 1-2. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Reciprocity. Columbia, Sept. 21. Sec., Mr. N. B.* Heyward, 1329 Blanding St., Columbia.

South Dakota:* *Examination.* Sioux Falls, Jan. 19-20, 1954. Reciprocity can be obtained at any time between meetings of board. Executive Secretary, Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Tennessee:* *Examination.* Memphis, Sept. 30-Oct. 1. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

Texas: Fort Worth, Nov. 12-14. Reciprocity applicants must be completed 30 days prior to the meeting date. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

West Virginia: Charleston, Oct. 19. Sec., Dr. N. H. Dyer, State Office Bldg., Charleston 5.

Wisconsin:* *Reciprocity.* Madison, October. *Examination and Reciprocity.* Madison, Jan. 12-14, 1954. Sec., Dr. A. G. Koehler, 46 Washington Blvd., Oshkosh.

Wyoming: Cheyenne, Oct. 5. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

Arizona: *Examination.* Tucson, Sept. 15. Sec., Mr. Herbert D. Rhodes, University of Arizona, Tucson.

Arkansas: *Examination.* Little Rock, Oct. 6-7. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock.

Colorado: *Examination.* Denver, Sept. 9-10. Sec., Dr. Esther B. Starks, *1459 Ogden St., Denver 18.*

Connecticut: *Examination.* New Haven, Oct. 10. Address: State Board of Healing Arts, 52 Whitney Ave., New Haven 10.

District of Columbia: *Examination.* Washington, Oct. 19-20. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

Florida: *Examination.* Gainesville, Nov. 7. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

Iowa: *Examination.* Des Moines, Oct. 13. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination.* Detroit and Ann Arbor, Oct. 9-10. Sec., Mrs. Ann Baker, 410 W. Allegan St., Lansing.

Minnesota: *Examination.* Minneapolis, Oct. 6-7. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.

Nebraska: *Examination.* Omaha, Oct. 6-7. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada: *Examination.* Reno, Oct. 6. Sec., Dr. Donald G. Cooney, Box 9005, University Station, Reno.

New Mexico: *Examination.* Santa Fe, Oct. 18. Sec., *Mrs. Marguerite* Cantrell, Box 1592, Santa Fe.

South Dakota: *Examination.* Vermillion, Dec. 4-5. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Tennessee: *Examination.* Memphis, Sept. 23-24. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

Texas: *Examination.* Dallas and Galveston, October. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Wisconsin: *Examination.* Madison, Sept. 19. Final date for filing applica*tion is Sept. 11. Milwaukee, Dec. 5. Final date for filing application is* Nov. 27. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

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* Basic Science Certificate required.

DEATHS

Boothby, Walter Meredith ⊕ Albuquerque, N. Mex.; born in Boston July 28, 1880; Harvard Medical School, Boston, 1906; practiced surgery in Boston from 1909 to 1916; in charge of metabolism and respiration laboratories at the Peter Bent Brigham Hospital in Boston from 1913 to 1916; instructor in anatomy from 1910 to 1916 and lecturer on anesthesia at his alma mater from 1914 to 1916; entered the Mayo Clinic in Rochester, Minn., as head of the section on metabolism in November, 1916; later became an assistant professor in medicine, associate professor in medicine, and professor of experimental metabolism at the Mayo Foundation, where he organized the aeromedical unit for research in aviation medicine; became head of the section on aviation medicine and research at the Mayo Foundation in January, 1942; in August, 1948, was made an emeritus member of the staff, at which time he became guest professor engaged in research in aviation medicine at the Institute of Physiology, University of Lund, Sweden; in 1949 was named consultant to the Swedish Committee on Naval and Aviation Medicine; while abroad he also appeared as guest lecturer at the universities of Aarhus, in Denmark, and Oxford and Cambridge, in England; in 1950 joined the professional staff of the school of aviation medicine in Randolph Field, San Antonio, Texas, as research adviser, and later became associated with the Lovelace Foundation for Medical Education and Research as head of the respiratory laboratory; in 1952 was awarded the Order of the Commander of the North Star by the Crown of Sweden in recognition of his work in helping to establish an aeromedical laboratory in Sweden several years before; during World War I served with the American Expeditionary Forces in France for 22 months as captain and major in the medical corps; was assigned for the greater part of the time to the Gas Defense Service and was also at the front as chief of the surgical team for the St. Mihiel and Argonne battles; specialist certified by the American Board of Internal Medicine; an Associate Fellow of the American Medical Association and the Institute of Aeronautical Sciences; member of the Minnesota State Medical Association, American Physiological Society, American Society of Biological Chemists, American Society for Clinical Investigation, Society for Experimental Biology and Medicine, American Institute of Nutrition, American Society for Experimental Pathology, American Society for Pharmacology and Experimental Therapeutics, Central Society for Clinical Research, Association of American Physicians, Alumni Association of the Mayo Foundation, and Sigma Xi; one of the original fellows of the Aero Medical Association of the United States; fellow of the American College of Physicians and the American College of Surgeons; as joint recipient of the 1939 Collier Trophy, he was cited by President Roosevelt for his contribution to aviation medicine in general and research on pilot fatigue in particular; died July 4, aged 72, of acute coronary thrombosis.

Boys, Charles Edwards ⊕ Kalamazoo, Mich.; born in Grenola, Kan., April 18, 1875; Northwestern University Medical School, Chicago, 1903; fellow of the International College of Surgeons and the American College of Surgeons; member of the House of Delegates of the American Medical Association from 1913 to 1929; veteran of the Spanish American War; during World War I a member of the city draft board and during World War II a member of the selective service area appeals board; formerly city health officer: affiliated with Borgess Hospital and the Bronson Methodist Hospital, where he died July 7, aged 78, of cerebral hemorrhage.

Glatt, Morris Arthur ⊕ Beverly Hills, Calif.; born in Russia in 1890; Loyola University School of Medicine, Chicago, 1917; assistant clinical professor of otolaryngology at College of Medical Evangelists, Loma Linda and Los Angeles; member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Otolaryngology; formerly practiced in Chicago, where he was on the faculty of his alma mater, and affiliated with Illinois Eye and Ear Infirmary and Mount Sinai, Norwegian American, American, and Garfield Park Community hospitals; died in Temple Hospital, Los Angeles, July 19, aged 63, of cerebral hemorrhage.

Boland, Matthew Joseph ⊕ Reading, Pa.; born in Harrisburg, Pa., March 23, 1904; Georgetown University School of Medicine, Washington, D. C., 1931; fellow of the American College of Surgeons; past president of the Berks County Medical Society; president of the Reading-Berks Tuberculosis and Health Association; served during World War II; formerly medical supervisor of parochial schools in Reading and a member of the Berks County Board of Public Assistance; chief of surgical service at St. Joseph's Hospital; died July 16, aged 49, of carcinoma of the right lung.

Wolin, David ⊕ Rochester, N. Y.; Jefferson Medical College of Philadelphia, 1914; associate in pediatrics, University of Rochester School of Medicine and Dentistry; specialist certified by the American Board of Pediatrics; an Associate Fellow of the American Medical Association; member of the American Academy of Pediatrics; served during World War I; past president of the Rochester Pediatric Society; affiliated with Highland Hospital; served as consultant pediatrician at the Rochester General Hospital; died July 3, aged 61, of coronary occlusion and polycythemia.

Pettit, Roswell Talmadge ⊕ Ottawa, Ill.; Rush Medical College, Chicago, 1913; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; served during World War I; in 1940 was appointed member of the advisory board, division of cancer control, Illinois State Department of Health; on the staff of the Ryburn Memorial Hospital; at one time medical director of the Ottawa Tuberculosis Sanatorium; died June 27, aged 68, of coronary thrombosis.

Arnett, James Horatio ⊕ St. Petersburg, Fla.; Temple University School of Medicine, Philadelphia, 1911; member of the Medical Society of the State of Pennsylvania; died in Veterans Administration Center in Bay Pines May 22, aged 85, of encephalomalacia.

Arnold, Burt G., Bradenton, Fla.; Hahnemann Medical College and Hospital of Philadelphia, 1893; died May 20, aged 86, of coronary thrombosis.

Aubin, Alexander, Minneapolis; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, Canada, 1902; died in St. Cloud, Minn., June 26, aged 80, of bilateral lobular pneumonia.

Bagwell, Barnum Williams ⊕ Madisonville, Tenn.; Medical Department of Grant University, Chattanooga, 1904; died June 28, aged 79, of a heart attack.

Beckes, Norman E. ⊕ Vincennes, Ind.; Medical College of Indiana, Indianapolis, 1897; served during World War I; for many years secretary of the city board of health; for four terms county coroner; affiliated with Good Samaritan Hospital, where he died June 19, aged 80, of pneumonia and pleurisy with effusion.

Bell, Carl Wendell, Raleigh, N. C.; College of Physicians and Surgeons, Baltimore, 1914; past president of the Raleigh Academy of Medicine; served in France during World War I; affiliated with Rex Hospital; died in Morehead City June 29, aged 65, of coronary occlusion.

Breitenbecher, Edward Robert ⊕ Highland Park, Mich.; Detroit College of Medicine, 1907; on the staff of the Highland Park General Hospital, where he died July 5, aged 70, of cancer.

Briggs, Harry Arthur ⊕ Albany, Texas; University of Texas School of Medicine, Galveston, 1913; died June 15, aged 65.

⊕ Indicates Member of the American Medical Association.

Bryson, Howard Russell, Lancaster, Pa.; Jefferson Medical College of Philadelphia, 1898; died June 27, aged 80, of cancer.

Coate, Charles Rufus ⊕ Whittier, Calif.; Medical College of Ohio, Cincinnati, 1907; died in Good Samaritan Hospital, Los Angeles, May 27, aged 75, of coronary arteriosclerosis.

Curll, Clyde Leslie ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1902; served during World War I; on the staff of the South Side Hospital, where he died July 4, aged 79, of cerebral hemorrhage.

Dixon, Chester Darwin ⊕ Santa Monica, Calif.; University of Nebraska College of Medicine, Omaha, 1926; served during World War II; on the staff of the Santa Monica Hospital; died April 11, aged 51, of myocardial infarction and arteriosclerosis.

Dougherty, William Sylvester ⊕ Portage, Pa.; Jefferson Medical College, Philadelphia, 1914; served during World War I; affiliated with Mercy and Conemaugh Valley Memorial hospitals, Johnstown, died July 5, aged 67, of coronary occlusion.

Dunton, Harold Roy ⊕ St. Albans, N. Y.; Long Island College Hospital, Brooklyn, 1904; died May 2, aged 71, of coronary thrombosis.

Eberhardt, Jacob Pope, Elberton, Ga.; Medical College of Georgia, Augusta, 1923; fellow of the American College of Surgeons; formerly affiliated with U. S. Public Health Service; died in Elberton Hospital July 1, aged 54, of cancer.

Eikenberry, Kenneth W. ⊕ Lieut. (jg) U. S. Navy, retired, Los Angeles; University of California Medical School, San Francisco, 1932; entered the U. S. Navy in June, 1931, and retired May 1, 1937; on the staff of the California Hospital; died July 15, aged 47.

Ellis, Edwin Milton ⊕ Ellsworth, Pa.; Jefferson Medical College of Philadelphia, 1901; died in the Mercy Hospital, Pittsburgh, May 14, aged 78.

Estrem, Carl O. ⊕ Fergus Falls, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1907; fellow of the American College of Surgeons; surgeon, St. Luke's Hospital; consulting surgeon, Fergus Falls State Hospital; died June 5, aged 73.

Farrish, George Clayton ⊕ Houston, Texas; University of Tennessee College of Medicine, Memphis, 1925; emeritus professor of clinical otolaryngology at Baylor University College of Medicine; died in St. Joseph's Hospital July 1, aged 58, of pulmonary embolism.

Foster, Robert Hale, Little Rock, Ark.; Creighton University School of Medicine, Omaha, 1906; member of the American Psychiatric Association; served on the staff of Central Louisiana State Hospital in Pineville, La.; died June 30, aged 71, of pneumonia.

Gibson, Ora James ⊕ Cape Girardeau, Mo.; Washington University School of Medicine, St. Louis, 1933; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; affiliated with St. Francis and Southeast Missouri hospitals; died May 20, aged 53.

Hayes, Milton Emerson, Youngstown, Ohio; Medical Department of the Western University of Pennsylvania, Pittsburgh, 1895; formerly county coroner; affiliated with Youngstown Hospital; died June 26, aged 85, of renal insufficiency and carcinoma of the prostate.

Holloway, Luther William ⊕ Jacksonville, Fla.; Tulane University of Louisiana School of Medicine, New Orleans, 1914; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; formerly vice-president of the Florida Medical Association; affiliated with St. Luke's, St. Vincent's, and Riverside hospitals; died May 7, aged 64, of cerebral hemorrhage.

Hollowell, Claude Velmont, Goldsboro, N. C.; Medical College of Virginia, Richmond, 1928; died June 13, aged 48, probably of heart failure.

Merrit, William Herbert ⊕ New York City; New York Medical College, Flower and Fifth Avenue Hospitals, 1934; specialist certified by the American Board of Radiology; member of the American College of Radiology; affiliated with Boulevard Hospital in Long Island City, Mount Sinai Hospital, Montefiore Hospital for Chronic Diseases, Hospital for Joint Diseases, Beth Israel Hospital, and the Manhattan State Hospital; died July 4, aged 43, of heart failure.

Montgomery, Robert Russell ⊕ Long Beach, Calif.; University of Toronto Faculty of Medicine, 1910; specialist certified by the American Board of Otolaryngology; member of the American Laryngological, Rhinological and Otological Society and the American College of Allergists; affiliated with Los Angeles County Hospital, the Queen of Angels Hospital in Los Angeles, and Long Beach Community and Seaside Memorial hospitals; died May 2, aged 68, of arteriosclerotic heart disease.

Moss, Maurice H., Miami Beach, Fla.; American College of Medicine and Surgery, Chicago, 1904; died June 17, aged 72, of coronary occlusion.

Palmer, C. Harold ⊕ Portland, Ore.; University of Oregon Medical School, Portland, 1915; served during World War I; affiliated with Emanuel Hospital; died in Salem June 28, aged 62, of cerebral hemorrhage.

Pielemeier, Edward Frederick, Los Angeles; Kentucky School of Medicine, Louisville, 1894; Hospital College of Medicine, Louisville, Ky., 1895; died June 26, aged 89.

Pion, Philias Arthur ⊕ Tuscaloosa, Ala.; University of Vermont College of Medicine, Burlington, 1916; affiliated with Veterans Administration Hospital; died June 28, aged 62.

Pressman, Abraham, Los Angeles; Temple University School of Medicine, Philadelphia, 1925 and 1932; formerly affiliated with the Indian Service; died May 20, aged 54, of acute coronary occlusion.

Robinson, John Ranson ⊕ Van Nuys, Calif.; College of Physicians and Surgeons, Baltimore, 1901; member of the Oregon State Medical Society; formerly practiced in Portland, Ore., where he was affiliated with the Portland Sanitarium and Hospital; died June 22, aged 84, of myocardial infarction and arteriosclerotic heart disease.

Scott, Thomas Ewing ⊕ Colonel, U. S. Army, retired, Tampa, Fla.; University of Nashville (Tenn.) Medical Department, 1907; entered the medical corps of the U. S. Army in 1912; served during World War I; retired Sept. 30, 1945; died May 21, aged 71,

Storch, Lewis A. E., Indianapolis; Medical College of Indiana, Indianapolis, 1891; died May 12, aged 84, of cerebral hemorrhage and chronic myocarditis.

Strang, David M., La Crescenta, Calif.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1907; died in Minneapolis June 14, aged 77, of coronary thrombosis.

Thabes, John Alois ⊕ Brainerd, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1896; served as a member and president of the state board of health; fellow of the American College of Surgeons; on the staff of St. Joseph's Hospital, where he died June 29, aged 80.

Tyson, William Elisha Ellicott ⊕ Detroit; University of Maryland School of Medicine, Baltimore, 1905; died June 18, aged 76, of myocardial infarction.

Waide, Arthur ⊕ Scottdale, Pa.; Physio-Medical College of Indiana, Indianapolis, 1898; died in Henry Clay Frick Memorial Hospital in Mount Pleasant June 8, aged 77.

Wier, Frank Augustus ⊕ Racine, Wis.; Ensworth Medical College, St. Joseph, Mo., 1904; died May 27, aged 74.

Williamson, Charles Hodge, West Union, Iowa; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; died June 26, aged 75, of coronary thrombosis.

Wright, Paul, Dunsmuir, Calif.; Rush Medical College, Chicago, 1903; died June 25, aged 82.

GOVERNMENT SERVICES

ARMY

General Seeley Honored.—Brig. Gen. Sam F. Seeley has been awarded a certificate of commendation for his work at Walter Reed General Hospital (Army Medical Center) Washington, D. C. For the past four years he has been chief of that hospital's surgical service and director of the surgical division in the Army Medical Service Graduate School. The citation refers to him as "an able and strong administrator in directing and implementing the policies of a large, complex surgical service consisting of all the surgical subspecialties." General Seeley will leave soon for assignment to the Office of the Chief Surgeon, headquarters of the United States Army, Europe.

Institute for Hospital Administrators.—The seventh semiannual Inter-Agency Institute for Federal Hospital Administrators will be held at Walter Reed Army Medical Center, Washington, D. C., Oct. 26-Nov. 13, 1953, for hospital administrators of the Army, Navy, Air Force, Veterans Administration, Public Health Service, and Bureau of Indian Affairs.

Personal.—Col. Robert S. Anderson has been assigned as executive officer, medical section, Headquarters Second Army, Fort Meade, Md. Previously he served as professor of military science and tactics, Johns Hopkins University School of Medicine, Baltimore.

NAVY

Annual Symposiums in First and Fourth Naval Districts.—The third annual medicodental military symposium of the First Naval District will be held at the Naval Hospital, Chelsea, Mass., Oct. 12-14. Each subject will be presented by a speaker of outstanding prominence in the specialty concerned. Special sessions have been planned in medical, surgical, dental, and medical administrative fields.

The fourth annual medicodental military symposium under the auspices of the Commandant, Fourth Naval District, will be held Oct. 19-24 at the Naval Hospital, Philadelphia.

Point credits for both symposiums will be awarded eligible reserve medical department officers on the basis of one point for each day of attendance, provided sessions attended total more than two hours. Naval Reserve Medical Department officers desiring to attend either symposium should request duty orders, without pay, from the Commandant of their home naval district. Reserve medical department officers who are members of other branches of the armed forces desiring point credit for attendance must obtain authority and appropriate orders from their area commander, or Air Force Headquarters, to assure accreditation. Reserve officers will be required to register for each day's session by presenting themselves at the registration desk. Properly authenticated reports of attendance will be rendered to the appropriate branch of the armed forces.

Information about the first district symposium may be obtained from the Commanding Officer, U. S. Naval Hospital, Chelsea, Mass., and about the fourth district symposium from the District Medical Officer, Fourth Naval District, Building 4, U. S. Naval Base, Philadelphia 12.

Medical Casualties in World War II.—A revised compilation of the killed, wounded, and decorated personnel of the U. S. Navy Medical Department in World War II is currently being distributed to Navy medical department facilities and to larger medical libraries for reference purposes. The booklet lists 1,149 medical department personnel as having been killed in action. It lists by corps the name, rank, date, activity to which attached and the location of some 3,117 commissioned officers and enlisted personnel who were wounded in action. The booklet also contains 148 pages of medical department personnel who received the top 10 awards and the location of the act of gallantry for which the decoration was awarded.

Course in Naval Aviation Medicine.—The next class in Naval aviation medicine will convene at the School of Aviation Medicine, Pensacola, Fla., Oct. 5, 1953. The course is of about six months' duration, and candidates successfully completing the course will be designated as Naval Flight Surgeons. The class will be limited to 30 medical officers of the Regular Navy and Reserve of the rank of lieutenant commander and below. The Bureau of Medicine and Surgery says there is an urgent need for Flight Surgeons in the air arm of the Navy, and eligible medical officers are requested to consider this growing field of medicine as a specialty for their career. Duty with aviation units affords general medical practice in addition to opportunities for practice in various specialty fields including otolaryngology, ophthalmology, physiology, psychiatry, and research. Medical officers desiring to enroll should apply to the Chief of the Bureau of Medicine and Surgery (Aviation Medicine Division) and should include in the request the following agreement of obligation: "I agree to remain on active duty for one year following completion of the course or for six months beyond my obligated service, whichever is longer."

AIR FORCE

French Medals Awarded.—The highest award of the French Air Force Medical Service, a gold Medal of Honor, has been presented to Major Gen. Harry G. Armstrong, Surgeon General of the U. S. Air Force. At the same time Brig. Gen. Otis O. Benson Jr. was awarded a Medal of Honor of the second class. Similar decorations also went to Brig. Gen. William J. Kennard of SHAPE headquarters and to Col. George B. Green, medical assistant to the air attaché in Paris. The presentations were for assistance rendered by all four officers to aviation medicine in France. It is the first time that the top decoration for aeromedicine in France has been given to an officer of any other nation.

Careers in Aviation Medicine.—The advanced class in aeromedicine of 10 medical officers graduated at the School of Aviation Medicine, Randolph Field, Texas, July 18. The class was a select group chosen for training in the more advanced techniques of aviation medicine. They are surgeons who wish to make a career of this specialty. Six have received orders assigning them to Johns Hopkins University in Baltimore for a further year of study. Three are rated Air Force pilots as well as doctors of medicine, who have taken their second year at Johns Hopkins. They are being assigned to the Tactical Air Command for residency training in aviation medicine.

Graduation at Air Force School.—On August 14 at the Air Force School of Aviation Medicine, Randolph Field, Texas, 115 student officers graduated. Col. Walter A. Carlson, surgeon of the Air University Command, of which the School of Aviation Medicine is a part, delivered the graduation address. A background of medical experience distinguishes the class. Major John A. Schilling, who will remain at the school as head of the department of surgery, was a former assistant professor at the University of Rochester. Capt. James P. Hammersten, also assigned to the school to head the department of internal medicine, was an assistant professor at the University of Minnesota. Capt. Edward A. Tyler taught at the University of Pittsburgh and Lieut. Leon O. Banks at Howard University. Ten of the officers have done research in various fields of medicine. More than half of those graduating had conducted their own medical practice before they entered the Air Force.

Personal.—Col. Robert J. Benford (MC), U. S. A. F., editor of the *U. S. Armed Forces Medical Journal*, will be the official representative of the Department of Defense at the fourth annual meeting of the medical editors of the world at The Hague, Sept. 7. He will also attend the interim meeting of the Aero Medical Association in Brussels, Sept. 24-27.

FOREIGN LETTERS

BRAZIL

Nontraumatic Perforation of Common Bile Duct.—Drs. Plinio Bove and Roberto Millan of the Hospital das Clinicas, São Paulo State University, reported (*Revista Hosp. clin.* 8:93, 1953) a rare case of spontaneous perforation of the common bile duct with retrocholeperitoneum and acute pancreatitis. The patient, a young woman of 21, was not aware of any trauma, and there had been no surgical operation. No stones were found on cholangiographic examination or at the operation. For some years she had had dyspeptic disturbances and right upper quadrant pains. In the last crisis, signs of peritoneal involvement appeared that led to emergency surgery. During the operation, it was possible to see a linear perforation of the common bile duct near the duodenum. The common duct was thick-walled and moderately dilated, and its mucosa showed hemorrhagic foci. A T-tube was placed in the perforation. In the postoperative course it was possible to recognize a common channel with pancreatic reflux (cholangiography) and biliary reflux (mecholyl-morphine test). There was also chronic inflammation of the common duct and the sphincter of Oddi. Cholecystectomy was done later. The biliary drainage through a Kehr catheter was maintained for 40 days, and the patient received large amounts of penicillin. In spite of this treatment the previous symptoms (pains and dyspeptic disturbances) did not disappear. This fact suggests that infection was not the principal etiological agent.

The authors believe that the main cause of this biliary disease and also of the acute pancreatitis and common duct perforation was the inflammatory process of the terminal part of the common duct. The postoperative examination by means of cholangiography and the mecholyl-morphine test showed biliary and pancreatic reflux through the papilla of Vater, causing the irritation of the epithelium by the eventual transformation of the trypsinogen into trypsin. This irritation, associated with the spasm of the sphincter of Oddi, may have led to the perforation of the common duct. They also believe that reversal of the inflammatory changes of the sphincter of Oddi, papilla of Vater, and the terminal part of the common duct may be obtained by delayed common duct drainage in about 50% of cases. When this treatment fails, incision of the papilla of Vater is the only way to obtain a complete recovery.

Mucocutaneous Leishmaniasis.—Dr. Julio Muniz of the Oswaldo Cruz Institute recently reported in *O Hospital* (43:1, 1953) the results of his experimental studies with the so-called Calle strain of Leishmania brasiliensis. This is supposed to differ from the variety reported by Dr. Barrientos who observed in Bolivia the patient from whom the material was taken. Dr. Nery Guimarães described a similar case of nodulotumoral leishmaniasis that he observed in the Amazon region of Brazil; the patient harbored a strain of the same parasite, which Dr. Guimarães also considered to be a different variety. Muniz believes that these observations illustrate the complexity of the problem of determining the causative agents of mucocutaneous leishmaniasis in man, although a great advance was made through the demonstration that the parasite causing visceral as well as cutaneous leishmaniasis in dogs is the same that produces the disease in man.

Agglutination of "Free-Living" Endamoeba Trophozoites by Human Serum.—The agglutination of "free-living" amebas has been studied by Zaubitzer (1901), Sellard (1911), Coca (1912), von Schuckmann (1920), and Heathman (1932), who tried by this means to distinguish different genera and species. To attain this aim they immunized animals through the inoculation of amebas by peritoneal or venous routes, and using the animals' serums attained various and in some cases contradictory results. The available medical literature does not contain references to the agglutinating power of human serum on "free-living" amebas, however. Drs. A. Azzi Leal and Dacio F. Amaral, of the School of Hygiene and Public Health of the São Paulo State University, reported (*Arq. Fac. hig. e saúde púb. Univ. São Paulo* 6:1, 1953), that trophozoites from cultures of Endamoeba moshkovski (a "free-living" ameba) were agglutinated by undiluted normal human serum, the agglutination being followed by the disintegration of the amebas in 15 to 45 minutes. With inactivated serum, the agglutination was observed in titers of from 1:20 to 1:320. When the material was kept in a refrigerator for 24 hours, the agglutination increased and appeared in cases in which it had been negative. No association was found between this agglutination and the presence of E. histolytica in the feces of the donors of serum. Comparing the present results with those of an investigation by the same authors (1952) in which they studied the action of the same serums on trophozoites of E. histolytica, they observed the following facts: 1. Active human serum has a disintegrative effect on both amebas. 2. The inactivated human serum agglutinates the "free-living" amebas in higher titer (1:20 up to 1:320) than E. histolytica (1:1 up to 1:40). 3. The agglutination of E. moshkovski persists and increases after 24 hours if the slides are kept at room temperature, in a refrigerator at 2 to 8 C, or in an incubator at 37 C, while under identical conditions the trophozoites of E. histolytica are destroyed.

Human Hymenolepiasis.—Dr. Dacio F. Amaral, of the School of Hygiene and Public Health, São Paulo State University, reported recently an investigation in which he stressed the importance of Hymenolepis nana in digestive abnormalities. After reviewing the cases of human parasitism by H. diminuta found in the medical literature of Brazil, he describes his work at the penitentiary of the state of São Paulo. In this study he examined the stools of 592 inmates, six times each during a period of 20 days, by the zinc sulphate flotation method. H. nana was found in 11 of the inmates, or 1.86%. The finding of H. nana in the stools was very irregular, since the first examination of the 592 subjects revealed four cases, the second examination two more cases, the third and fourth one more each, the fifth two more, and the sixth one more. In view of such irregularity, it is not known whether more tests would disclose still more cases. It is pointed out that this fact must be kept in mind if one desires to determine the exact efficiency of drugs against that worm. Results are presented of treatment of hymenolepiasis due to H. nana with chloroquine and gentian violet, showing that they were not satisfactory.

JAPAN

Yoshida Sarcoma and Free Cell Tumors.—Dr. Tomizo Yoshida, professor of pathology, department of pathology, University of Tokyo Medical School, has been awarded the Imperial Prize of the Japan Academy for 1953. The award was given at the annual assembly on May 17, in the presence of his Majesty Emperor Hirohito at the Amphitheater of the Japan Academy, Ueno Park, Tokyo. Professor Yoshida was thus honored for his contribution to the study of the peculiar type of sarcoma of the rat now called the Yoshida sarcoma, following the proposal made at the annual meeting of the Japanese Cancer Association in 1948. In the years since his discovery in June, 1943, over 30% of the cancer literature in Japan has been concerned with this tumor, an indication of its significance.

The tumor is characterized by the ability of its cells, when suspended in fluid as individually separate free cells, to proliferate in the abdominal cavity of the rat. They infiltrate

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The items in these letters are contributed by regular correspondents in the various foreign countries.

at the same time into surrounding tissues, resulting in massive growth that causes the death of the host in an average of 10 days.

This was first discovered in one of the 20 rats fed with o-aminoazotoluol (a carcinogenic substance discovered by Sasaki and Yoshida), followed by painting with arsenite of potassium solution on the back three times a week. Toward the end of the sixth month of the experiment a tumor was found in the scrotum; it grew rapidly within one month and was about to become ulcerated. The animal was killed on June 28, 1943, and a malignant growth was found to be widely infiltrating through the pelvic cavity to retroperitoneal tissues. In the peritoneal cavity there was a thick, milky ascitic fluid that was actually a suspension of the tumor cells. The ascitic fluid was successfully transmitted into the peritoneal cavity of normal rats.

Although Loewenthal had previously reported in 1932 a similar tumor (Ehrlic's "Ascites-Krebs"), the interest of scientists in fluid of free cell tumors actually resulted from the independent and well-controled studies of Yoshida.

Serial transplantation of the Yoshida sarcoma is performed by using a glass capillary tube, which is also useful for obtaining the tumor fluid. One droplet of the fluid is sufficient for cytological observation. The tumor fluid contains 0.5 to 1 million tumor cells per 0.001 ml. For transplantation 0.01 to 0.05 ml. of fluid containing 10 to 50 million cells is routinely used. The exact number of tumor cells in the inoculum of the Yoshida sarcoma can be easily determined by the method of counting blood cells.

Yoshida and his co-workers finally found that a single tumor cell was enough for successful transplantation. The tumor fluid was diluted until each droplet contained only one or no tumor cell. After microscopic confirmation that a droplet contained only one tumor cell, the droplet was sucked into a micropipet by means of a micromanipulator and then was blown into the peritoneal cavity through the punctured abdominal wall. The single cell transplantation was tried 125 times and was successful in 69 animals. It should be emphasized that results of all attempts using materials microscopically free from tumor cells were negative.

Mitotic forms are frequently found in smears of the Yoshida sarcoma. Each stage of cell division may be easily observed. The chromosome studies of the Yoshida sarcoma cells have been performed by Yoshida's co-workers and zoologists in this country. The number of the chromosomes varies fairly widely but 42 chromosomes, the regular number of rat germ cells, is also the most frequent number, with fluctuation between 32 and 50.

By the phase-contrast microscope it was possible to observe the entire course of a mitotic division in vitro. The average length of time for complete mitosis was approximately an hour or slightly less. The full process of mitosis of the Yoshida sarcoma has now been brought to easy observation by motion pictures taken by his research group.

The Yoshida sarcoma is most suitable for study of tumor chemotherapy, because (*a*) the cytological response can be easily, exactly, and repeatedly examined, thus serving as an indicator of the efficacy of chemicals, (*b*) direct effects of chemicals upon the tumor cells can be observed by intraperitoneal administration of materials to be tested, and (*c*) the rate of successful transplantation is as high as about 95% and the fluctuation of the life span of the tumor-bearing rats is relatively small, thus enabling easier observation of the effects.

Dr. Yoshida checked numerous compounds in collaboration with Prof. Morizo Ishidate, department of pharmacology of Tokyo University. So far nitrogen mustard and its derivatives are of the most interest in this respect. In an effort to lower the toxicity of nitrogen mustard, the N-oxide derivative of the substance was prepared; it is hydrophilic and far less toxic. The new compound was tested carefully by animal experiments and in patients with various kinds of cancer. As far as animal experiments go, it is one of the hopeful remedies. It is now provided for general use under the name of Nitromin.

The influence of Yoshida's discovery upon tumor research in Japan is limitless. It is no exaggeration to state that all aspects of tumor biology have been reinvestigated with this sarcoma: Transplantability in various strains of rats and animals of different species, histological and immunologic reactions involved in transplantation, correlations between hereditary constitution of rats and development of tumor, transplantability to chick embryo, behavior in tissue culture, respiration and glycolysis, resistance to x-rays, supersonic waves and other physical agents and all kinds of chemical substances, changes in enzymatic actions and serum protein in the sarcoma-bearing animals, cytochemical researches of the sarcoma cells, nucleic acid content of the fluid and tumor cells, paper-chromatographic studies of the tumor fluid, radioautography of the tumor fluid, radioautography of the tumor cells, and so on.

Some scientists outside Japan became keenly interested in the Yoshida sarcoma, and the samples are now maintained in the National Cancer Institute, Bethesda, Md., in Sweden and Germany. Professor Yoshida was a guest speaker of the Gorden Conference on Cancer held in New London in 1951. Dr. Yoshida and his associates are now extending their study to other types of free cell tumors and have already obtained a specimen from an experimental hepatoma of the rat.

PARIS

Psychic Disorders During Isoniazid Therapy.—On March 6, at the meeting of the Medical Society of the Paris Hospitals, R. Benda, P. Kaufmann, and J. F. Buisson reported three cases in which psychic disorders occurred between the second and the sixth weeks of treatment with isoniazid. They also noted in other patients treated with this drug some alteration of the electroencephalogram not associated with any psychic or neurological disorder. Marquezy stated that he noted a hypomanic reaction in two children who were given very large doses of isoniazid; the reaction subsided when the size of the doses was decreased. Fouquet also noted a hypomanic reaction in a man with a previous history of psychopathology after only eight days of treatment. Peron noted euphoria and excitation in some patients, and he believes that these reactions are almost identical with those observed in response to cortisone. Paraf assumed that isoniazid probably affects the diencephalon. To the contrary, Ravina contended that isoniazid has no specific action. Duroux reported on two alcoholic patients who experienced a deep disgust for alcohol after treatment with isoniazid. R. Benda and associates commented on the complexity of the problem and drew attention to the recently published work of Prof. J. Delay and associates on the favorable effect of isoniazid in patients with depression or melancholia. Therefore, caution should be observed in giving this drug to patients with a history of psychological disorders.

Studies on the Stomach.—Chiray, J. Sénèque, and S. Doubrow presented to the National Academy of Medicine an original paper on stomach pathology. In this paper, they drew attention to the histophysiological pecularity of this segment of the digestive tract. Because of their experiments, they considered the pathology of the stomach according to the action of large molecules of disintegrated albumins that penetrated the antral mucosa. According to the authors, there exist three possibilities: The first is that the large molecules, acting as reactogens, exert an influence only on the sympathetic elements of Meissner's plexus and on Auerbach's plexus, thus provoking mucosal erosion. Second, the sensitization may be restricted to the antrum itself, which might cause an ulcer following an initial Arthus' phenomenon. A third possibility is that the large molecules may provoke an endothermal reaction in the heterotopic cells, which may be the origin of an action affecting the chromosomal apparatus. This reaction may result in the beginning of development of malignancy. The authors stressed that much research is in progress in this field.

Fiftieth Anniversary of the Grancher Foundation.—The 50th anniversary of the Grancher Foundation was celebrated at the Pasteur Institute by many leaders in the medical profession. Courcoux, J. Renaults, and Armand Delille stressed the important part played by the phthisiologist Grancher in the antituberculosis struggle. The aim of the Grancher Foundation is to isolate children in good health from their tuberculous parents and to place them in the country. Every year it places 6,000 children and has branches in all departments of France. Since 1948 all children cared for by the foundation have been vaccinated with BCG. Lately, this foundation has become one of the centers for placing children who must be isolated after vaccination with BCG.

SWEDEN

Obstetric Deliveries in Hospital or at Home.—During the past two decades, a profound change has taken place with regard to the number of deliveries in hospitals and at home. At present only about 5% of all deliveries occur in the mothers' homes, whereas this was the case with about 75% 20 years ago. These figures reflect a trend that has provided the country with a network of 236 institutions ranging from fully equipped maternity and gynecologic hospitals to cottage hospitals and comparatively primitive centers in which women can be confined. Discussing this state of affairs, Dr. Ludvig Simon of the County of Norrköping reproduces several tables in *Svenska Läkartidningen* for May 29, 1953. One of the tables is concerned with the two year period 1950 through 1951. This table shows how the 222,460 confinements throughout Sweden were distributed according to whether they were at home (12,137) or in one or another of the five different types of maternity hospital. The maternal mortality was 0.069% (69 per 100,000), a record judged by international standards. The total infant mortality associated with pregnancy and confinement was 3.1%.

With these and other figures for his background, Dr. Simon raises the question: "Should an effort be made to raise the confinements in hospital from the present 95 percent to a 100 percent or should the 5 percent confinements at home be left unchallenged?" He is emphatically in favor of the former alternative, and he argues that the old system, with midwives attending mothers in their own homes, is a snare and a delusion. It may be all very well in a town where, if matters go badly at home, the expectant mother can be rushed to hospital at the last moment, but, in a thinly populated and wide area like Lapland where a journey from the mother's home to a hospital may take days, the maintenance of the old midwife system may tempt a prospective mother to remain at home for her confinement. If she knew that no provision was made for her confinement at home, she would be forced to travel to a maternity hospital soon enough for her confinement. Dr. Simon has scrutinized the conditions under which 38 confinements took place at home in the County of Norrköping in the period between 1948 and 1951. In only eight of these did the confinement take place under satisfactory economic and housing conditions. In 14, the expectant mother could not leave home because she could not get anyone to take her place there. In four others, the mothers were confined before a midwife could reach them.

Association of Bronchiectasis with Asthma.—Though certain textbooks have contained the statement that bronchiectasis is common in association with asthma, impairing the prognosis for it considerably, reliable data on this point seem to be conspicuous by their absence. Lack of systematic bronchographic examinations of asthmatic patients may well be responsible for ignorance in this matter, and, to repair it, Dr. N. Westermark and Dr. S. Wiholm of Stockholm have undertaken bronchographic examinations of 100 consecutive patients with bronchial asthma treated at the St. Göran's Hospital since 1949. The Westermark technique was followed; about 10 ml. of iodized oil (Lipiodol) was introduced after the pharynx and larynx had been anesthetized. Most of the patients had had asthma for more than 5 years, 47 of them for more than 10 years. In 18 cases, there was a history of pneumonia once or oftener, and 21 patients had had sinusitis. As many as 70 had yielded, or still yielded, purulent sputum, but genuine chronic bronchitis was present in only 5. Only in four patients was bronchiectasis demonstrable, and in each one the lesion was comparatively small, much smaller than the large and extensive lesions existing when bronchiectasis gives rise to serious symptoms. These observations suggest that asthma does not as a rule predispose the patient to the development of bronchiectasis and that the association of one disease with the other is comparatively rare. Yet in 1938, Watson and Kibler found that 90% of their patients with bronchiectasis also had asthma.

Notification of Certain Forms of Cancer in 1953.—It is hoped that Sweden will take an active part at the meeting to be held in Washington in September, 1954. The meeting has been called by the Société Internationale de Pathologie Geographique to discuss the behavior of cancer of the uterus, breasts, lungs, stomach, and liver. Professor Folke Henschen of Stockholm, the secretary of the Swedish National Committee dealing with this matter, has issued an appeal to all his colleagues to take an active part in collecting the necessary data. This committee is composed of 12 clinicians, 9 pathologists, 2 veterinary surgeons, and 3 statisticians and is presided over by Professor E. Sjövall. Physicians in Sweden have received from the Swedish Ministry of Health a questionnaire concerning the new cases of cancer diagnosed for the first time in 1953 in the above-mentioned organs. When completed these questionnaires are to be sent to the Radiumhemmet in Stockholm where they will be registered and checked to avoid duplication. The registration of cases of cancer of the liver will be undertaken by the physicians who have performed postmortem examinations. The inclusion of cancer of the liver, a rare disease in the Scandinavian countries, stresses the international character of the forthcoming meeting in Washington, for there are many subtropical and tropical countries in which this form of cancer is very common. The notification of certain forms of cancer is the first step taken in this direction in Sweden, and it may well lead to a more elaborate system of notification in the near future. In this respect, a stimulating example has already been set in Denmark where a cancer register has been dealing with all forms of cancer on a national scale for many years.

Anthropological Tests of Paternity.—Until quite recently, the only biological and laboratory test of paternity recognized by Swedish law was the blood group test. In 1949, legislation was adopted allowing the admission of certain anthropological data as evidence in disputed cases of parenthood. This law became operative at the beginning of 1950 and promises to help considerably in determining parenthood in doubtful cases. The Swedish State Institute for Human Genetics (Statens Rasbiologiska Institut) at Uppsala is often called on to give evidence in this field, and already it has provided useful information to the law courts in approximately 10 to 15% of the cases referred to it. In an account of the work of this institute in *Nordisk Medicin* for May 22, 1953, Dr. Jan A. Böök is very cautious in his estimate of the value of anthropological data in such cases. For, at present, the special anthropological studies of the Swedish population necessary for a well-balanced judgment in a given case have yet to be made. When they have, it would, in his opinion, be possible to give complete and categorical answers in most cases. Even now anthropological data, such as the color of the irises of the child, the mother, and the potential father, may clearly show which is the real father when the blood group test has left the matter in doubt. On this particular point Dr. Böök notes that at the institute no case has yet been found of a brown-eyed child being born to parents both of whom are blue-eyed. In his experience, a child must be at least 2 years old if it is to provide all the necessary anthropological data required in a disputed case.

CORRESPONDENCE

STORING AMPULS FOR SPINAL ANESTHESIA

To the Editor:—Utmost care must be taken to prevent contamination of any solution used for spinal anesthesia. Spinal anesthetic drugs are prepared in sealed ampuls and are usually sterilized by storage in a container of antiseptic solution. Severe neurological complications have been reported resulting from contamination of the anesthetic solution by the antiseptic (Nicholson, M. J., and Eversole, W. H.: *J. A. M. A.* **132**:679 [Nov. 23] 1946). This can occur if a very small crack is present in the ampul and should be detected at once. Steinberg reemphasized this danger and suggested storage of ampuls in thimerosal (Merthiolate) so the color contamination could be noted (*Anesthesiology* **11**:257 [March] 1950). Different coloring agents have been tried, and all work on the principle of antiseptic contamination giving the defective ampul a slight tint of the same color used in the antiseptic solution.

At the Massachusetts General Hospital a solution is prepared that contains fluorescein dye. It is brightly colored, but on long storage the outside of the ampul becomes stained and contamination of the contents cannot be detected until the solution is drawn into a syringe. It was believed that an indicator solution could be found that would give the contaminated ampul a color different from the color given the sterilizing solution. Preliminary tests with several indicators showed that the pH of the agents commonly used for spinal anesthesia was lower than 5.4. From the table of indicator solutions in a handbook of chemistry and physics it appeared that methyl red would change in the desired range. A test sterilizing solution was made from 95% ethanol and a saturated alcoholic solution of methyl red (pH 4.2—pink and pH 6.2—yellow) was added drop by drop until the solution was bright yellow, about a 1% solution. A trace of this sterilizing solution added to each ampul tested gave it a definite pink or red color.

Following are the spinal anesthetics that this indicator colors red: procaine hydrochloride 20%; procaine 1% and ephedrine 5%; dibucaine (Nupercaine) hydrochloride 0.25%, with dextrose 5%; piperocaine (Metycaine) hydrochloride 20%; procaine hydrochloride (Novocaine) 1%; tetracaine (Pontocaine) hydrochloride 1%; and dextrose 10%. The following vasopressors were also colored red by the sterilizing solution: methoxamine (Vasoxyl) hydrochloride; epinephrine (Adrenalin) chloride 1:1000; and phenylephrine (Neo-Synephrine) hydrochloride 1%. Ephedrine sulfate does not have a low enough pH for this indicator and takes the same color as the sterilizing solution. Ethanol, 95%, is not a solution for sterilizing ampuls, but this principle will work in any sterilizing solution used, as long as the pH is 6.2 or above or can be so adjusted by addition of sodium hydroxide.

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MYOCARDIAL INFARCTION

To the Editor:—For some years, it has been the teaching of eminent clinicians that the beginning of myocardial infarction coincides with the onset of acute symptoms. The literature refers to "silent infarcts" (*Am. Pract.* 4:64 [Oct.] 1949), but there is little consideration of cases in which there was eventual development of the characteristic clinical picture.

During a recent pathological study of coronary disease with Dr. J. B. Miale, I observed an interventricular septal rupture one day after onset of the acute coronary occlusion syndrome, recalling a similar case reported by Geckeler (*J. A. M. A.* **148**:1413 [April 19] 1952). Both Geckeler and Oblath, Levinson, and Griffith (*J. A. M. A.* **149**:1276 [Aug. 2] 1952) admit that well-developed myocardial necrosis is prerequisite to such rupture. According to Mallory, however, infarction necrosis of heart muscle is not well-established until the fourth day. From our own series of 84 cases, we selected the 24 hearts containing infarction more recent than the fibrotic stage. Of these, seven hearts (29%) had infarcts significantly older than the clinical histories would indicate; the discrepancy varied from two days to three weeks. Only one of the seven had myocardial damage too extensive to be compatible with recovery, and much of this was successive infarction chronologically parallel to hyperactivity of the patient. One patient had extracardiac illness that caused death, and one died of thromboembolic complications. In five there were premonitory symptoms that were not incapacitating and did not cause enough professional alarm to initiate the treatment and care usually given in cases of suspected myocardial infarction.

Out of these findings, there arise cautions that no practicing physician can afford to ignore: 1. In the patient who has had previous cardiac symptoms and who has learned to live with them in a reassured fashion, the differential recognition of chronic and acute symptoms is often obscured. 2. Myocardial injury occurring as a complication of some other illness that commands primary attention, is more likely to escape full awareness, even on the part of the clinician. For example, Wroblewski and LaDue have recently mentioned the notable absence of precordial pain in some patients suffering myocardial infarction after major surgery (*J. A. M. A.* **150**:1212 [Nov. 22] 1952). 3. Even in patients without other illness or previous coronary episode, the beginning of infarction may antedate acute symptoms by several days. Obviously, in a patient with any indications of myocardial ischemia or any of its predisposing factors, a higher index of suspicion of myocardial injury is warranted. Thus, if a patient seen supposedly at onset of the coronary occlusion syndrome is treated with the precautions that would be used for persons in the full danger stage of myocardial necrosis, complications and death may be avoided. Also, premonitory or "chronic" coronary symptoms appear worthy of more consideration than is often thought necessary.

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BULBAR POLIOMYELITIS

To the Editor:—The letter in the June 20, 1953, issue of The Journal (page 757) by Dr. Frank concerning the effectiveness of a well-planned approach to the management of patients with bulbar poliomyelitis deserves commendation for its clarity. At this time when we are faced with the seasonal increase in poliomyelitis, Dr. Frank's letter and the report of several thousand treated cases to which he refers (Bower, A. G., and others: A Concept of Poliomyelitis Based on Observations and Treatment of 6,000 Cases in a Four-Year Period, *Northwest Med.* [Feb., March, and April] 1950) should be required reading for all physicians treating poliomyelitis patients. The deleterious effect of hypercapnia should be well understood by both nurses and physicians.

Lest physicians in smaller communities be deterred from using the apparently complex laboratory aids outlined in Dr. Frank's letter, I wish to inform other physicians of the relative ease with which a program of laboratory guides was established in a small community hospital (Memorial Hospital of Sheridan County, Wyoming) in 1952 and to emphasize the practical value of the laboratory determinations that helped us in the management of bulbar poliomyelitis in accordance with principles outlined by Dr. Frank. Another value of such a program is the renewal of interest by other physicians in the community in the diverse metabolic disturbances in poliomyelitis and, after the poliomyelitis season, in a variety of other clinical conditions.

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COUNCIL ON MEDICAL SERVICE

MATERNITY AND INFANT CARE PROVISIONS FOR SERVICEMEN'S DEPENDENTS

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and
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The abstract of part 1 of the study concerned with providing medical, hospital, and related services to the wives and dependents of servicemen appeared in The Journal, *June 7, 1952, page 597. Following is an abstract of part 2 of this continued study under the joint sponsorship of the Welfare Council of Metropolitan Los Angeles and the American Medical Association. This study was part of a comprehensive project from which facts were obtained as a basis for making recommendations to help solve this particular problem in medical service. The report, including the above mentioned recommendations, by the Council on Medical Service appeared in* The Journal, *June 20, 1953, page 758.*—Ed.

Application of research methods for the purpose of determining the pattern of community utilization of medical services is a recent field of endeavor in the long history of medical research. This abstract presents a summary of a research project on uses and costs of medical services. The study was conducted in two parts and originally was initiated for study of the need for an emergency maternal and infants' care program such as the one in operation during World War II.

The interest in this subject, locally as well as nationally, grew out of concern that, with the great increase in the number of persons in our armed forces, some kind of special program might be indicated for meeting the medical needs of dependents. There was a developing interest in special federal assistance to provide maternal and infant care for servicemen's dependents and considerable speculation as to the extent of need for medical care assistance among dependents.

This study, as well as the first one, was jointly financed by the American Medical Association and the Welfare Council of Metropolitan Los Angeles. Both studies were directed toward investigating the nature of the problems encountered by servicemen's wives when they were seeking and utilizing maternal and infant care services. The data for part 1 were secured through interviews with servicemen's wives residing in Los Angeles County who delivered during a selected week in January, 1952. These women were interviewed in a total of 89 hospitals and maternity homes. In a small number of cases, the interviews took place in the women's homes shortly after delivery.

Experience gained in the first study led to a clarification of the concept of need. Conclusions that describe the needs for medical care in general terms cannot serve to point up specific patterns of medical service that might be developed to alleviate the need. When need is expressed in terms of the nature of the problems or difficulties encountered when seeking and utilizing medical services, however, the data obtained can readily be translated into remedial measures.

DESIGN OF THE STUDY

The universe for part 2 was the total number of servicemen's wives living in Los Angeles County who delivered during the month of August, 1951. Most of these women delivered in hospitals located within the boundaries of Los Angeles County, but some delivered in hospitals in adjacent counties and as far away as San Diego.

The seven months intervening between the time of birth (August) and the study period (March and April) allowed for the inclusion in Los Angeles County Vital Statistics of the out-of-county births. From the universe of 286 cases, a 25% stratified random sample was selected. Visits were made in a total of 129 cases, yielding 71 completed interviews. It was anticipated that some of the women selected for interviewing would have left the area and would not be traceable. Therefore, it was necessary to construct a sampling method[1] that would allow for substitution of cases similar in essential characteristics to the lost cases. In order to get such cases it was necessary to stratify the population in terms of criteria demonstrably related to the problem under observation, i. e., in terms of problems encountered by servicemen's wives in seeking and utilizing maternity and infant care. These criteria were selected through analysis of the cases included in part 1 of the study.

An interview schedule was constructed and tested in a pilot study. Major categories covered were (1) general information on social situation of the family; (2) information on prenatal care; (3) information on hospitalization; (4) financial costs and methods of payment for prenatal, delivery, and hospital care; (5) attitudes regarding medical care and financing; (6) postpartum care; and (7) pediatric care.

Table 1.—*Pattern of Resources Used by Seventy-One Women in the Sample, Los Angeles, August, 1951*

	Type of Care			
Facility Used	Prenatal Care, %	Hospital Care, %	Post-Partum Care, %	Pediatric Care, %
1. Private Physician	54.9%	....	64.8%	43.7%
2. Private Hospital	4.2	63.4%	5.6	0.0
3. Military Facility	14.1	14.1	14.1	8.4
4. County or City Facility	12.7	22.5*	11.3	15.5
5. Combined Military and County or City Facility	1.4	....	....	1.4
6. Combined Public † Facility and Private Physician	11.3	....	0.0	28.2
7. No care	1.4	....	4.2	2.8‡
Total	100%	100%	100%	100%

* One of these women delivered twins.
† Public here includes military, county, and city facilities.
‡ One baby died three days after birth.

SUMMARY OF FINDINGS

Analysis of the data revealed three problems generally felt and expressed by the women. These problems were not equally distributed but recurred often enough for them to be considered general in the population. They were (1) financial difficulty, (2) the distance to medical facilities, and (3) lack of knowledge of community services.

Interestingly, lack of maternity medical care was not a problem for servicemen's wives in the Los Angeles area; 91.6% of the sample received prenatal care, hospitalization, and postpartum care and their infants received pediatric care. The amount of care was generally high, and care was received for the first time early in the course of the pregnancy.

Three types of facilities were available and used to varying degrees, (1) private; (2) military; (3) city or county. Table 1 shows the pattern of resource use.

1. THE PROBLEM OF FINANCIAL DIFFICULTY

In a sense, the problem of financial difficulty was a consequence of obtaining care. Since the women received care, it was necessary that they or others assume responsibility for payment. Financial difficulty was defined as (1) choice of a particular type of care for financial reasons rather than for expected standard of care and/or (2) response of yes to a question such as "Would you say you felt financial hardship during this period?" A total of 66.2% of the women satisfied one or both of these criteria in regard to hospital care, and 62% in regard to prenatal care.

From the Research Department, Welfare Council of Metropolitan Los Angeles.

[1] Carter, G. W.; Reznick, E., and Roman, G.: Maternity and Infant Care Provision for Servicemen's Dependents, Publication No. 13, Research Department, Welfare Council of Metropolitan Los Angeles, 1952, pp. 5-9.

The expressions of financial difficulty had as their background the monthly income available and costs of maternity care. Table 2 shows the distribution of monthly incomes available[2]; 67.6% of the women received monthly incomes of $150 or less.

TABLE 2.—*Monthly Income Available During Prenatal Period for Seventy-One Women in the Sample, Los Angeles, August, 1951*

Prenatal Monthly Income	Percentage
$0-$150	67.6%
$151-$250	21.2%
Over $250	11.2%
Total	100.0%

Table 3 shows total charges for maternity care. Included are charges for all care received by the woman. Charges for pediatric care do not appear here. Almost one-quarter, or 24.0%, were charged more than $250 for maternity care. Over one-half, or 59.2%, were charged more than $150.

The women used several alternatives to reconcile the discrepancy between income and costs. One major group sought subsidized maternity care. Table 1 shows that 43.7% received some subsidized prenatal care and 36.6% subsidized hospital care. Another large group sought private care but paid for it on an installment basis. Half the women paid for private prenatal care in installments; however, payment for private hospitalization in installments was less frequent.

Somewhat less important was the use of supplemental funds such as savings or other income, insurance, or income from employment. Only 5.6% had even partial insurance coverage. Income from employment was used to pay part of prenatal costs in 9.9% of the cases and hospital costs in 8.5%. Subsidies were received by 47.9% of the women for their living expenses as well as/or for medical care. These women shared households and contributed less than their full share of expenses or lived in independent households and received regular contributions from parents.

2. THE PROBLEM OF DISTANCE TO MEDICAL FACILITIES

The second problem, distance, occurred often when a woman sought military care as an alternative to private care. The closest military hospital was approximately 50 miles to the north. The best known military hospital, approximately 100 miles south of the Los Angeles area, was at Camp Pendleton.

TABLE 3.—*Total Charges for Maternity Care to Seventy-One Women, Los Angeles, August, 1951*

Total Charges	Percentage
$0-$50 *	29.6%
$51-$100	1.4%
$101-$150	7.0%
$151-$200	16.9%
$201-$250	18.3%
$251-$300	8.5%
Over $300	15.5%
No information	2.8%
Total	100.0%

* Includes those women who received free prenatal care at military or public health department clinics and made token payment for care in military hospitals ($1.75 per day for rations) or were not billed for care at the Los Angeles County Hospitals.

The attitude of the women toward military hospitalization as distinct from county hospitalization was important in relation to this problem. They tended to accept military care as a real alternative available to them, but to define county hospital care as "for charity cases" and therefore not usually acceptable or available to them. Table 4 shows the percentage of women using the various types of care who indicated that distance to the military facilities was a deterring factor in their use.

Distance was undoubtedly made even more important because of the general inexperience of these women; 76.1% were primiparas, and 32.4% were 19 years of age or younger. They were not wives of professional soldiers; 42.3% of their husbands had been in the armed forces one year or less at the time of hospitalization. In 45% of the cases the husbands were in the three lowest pay grades.[3] Had military hospitalization been available within the county, it might have been used by a greater percentage of the women.

3. THE PROBLEM OF LACK OF KNOWLEDGE OF FACILITIES

There were four possible alternatives for prenatal care: (1) private physicians, (2) private hospital clinics, (3) city or county public health department clinics, and (4) military clinics. There were three possible alternatives for hospital care: (1) private hospitals, (2) military facilities, and (3) county hospitals. In some cases one or more of these was not a real alternative, since the women were unaware of its existence or learned of its existence relatively late in the prenatal period. Table 5 shows the distribution of lack of knowledge of military and/or city and county resources for maternity care.

TABLE 4.—*Percentage of Women Who Indicated Distance to Military Facility Was a Deterring Factor in Its Use*

Facility Actually Used	Percentage Deterred by Distance	
	For Prenatal Care	For Hospitalization
Private	45.2%	51.5%
Public Health Departments	88.9%	68.8%
Military	70.0%	70.0%

TABLE 5.—*Distribution of Women Who Lacked Knowledge of Military and/or Public Health Department Resources*

Facility Not Known of	Percentage Lacking Knowledge	
	Prenatal Care	Hospital Care
Military facilities	16.9%	16.9%
Public health department facilities	25.4%	14.1%

About one-fourth, or 25.4%, of the women could not have chosen public health department facilities and 16.9% could not have chosen military facilities for prenatal care, since they were unaware of their existence or availability. Likewise, 16.9% could not have chosen military hospitals and 14.1% could not have chosen county hospitals. The only possible solution to this problem was to choose from the facilities that were known.

OTHER ITEMS OF INTEREST

In addition to the analysis of data in terms of the three general problems, the full report[4] discusses certain specific aspects of the maternity situation. It presents data concerning (1) postpartum care, (2) pediatric care of the infant, (3) pediatric care of older children, (4) medical complications, and (5) changes in the social situation subsequent to hospitalization.

REPORT OF CASES

The following cases were selected to illustrate the kinds of problems encountered by servicemen's dependents in seeking and receiving maternity and infant care. As previously discussed, the definition of financial hardship used in this study did not rest primarily on the type of medical care received, the particular facility used, nor the objective characteristics of the patient's particular situation. Rather, it rested primarily on the woman's feelings and attitudes regarding the kind of care that she received and the problems that she encountered. This means that one woman using county hospital facilities may have been particularly disturbed about this, because she normally, given the financial resources, would have used a private physician and a private hospital. Another woman using the same facilities may have been completely undisturbed because these were the resources that she would have used in any case. The second woman's "normal" circumstances are such that they were not drastically altered by her husband's induction into the armed services. The same is true for women using private hospitals. One woman used such facilities at the cost of great self-deprivation. Her opposite, however, using the same resources, may have done so without feeling any undue financial hardship. The other two problems encountered by servicemen's dependents when seeking and securing maternity and infant care, i. e., distance from medical facilities and lack of knowledge of community resources, may also have been in evidence in some cases and not in others, although the patients used the same facilities and appeared to be in identical circumstances.

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[2] Monthly income includes allotment, money earned from employment, and husband's pay if he was living in the household or any additional allowances if he was away from home.

[3] The data showed that women with husbands in the higher pay grades tended to choose military care as the alternative to private care; women in the lower pay grades tended to choose nonmilitary public care as the alternative to private care.

[4] Footnote 1, pp. 43-63.

The six case reports are grouped by type of hospital used. The women in the first two cases delivered in private hospitals; those in the second two cases delivered in military hospitals; and those in the third two cases delivered at county hospitals.

DELIVERY IN PRIVATE HOSPITALS

Case 1.—Background: Mrs. A. was 19 years old. Her husband, aged 22, was a private in the Army and was stationed in Germany at the time of the birth of this, her first child. He had been in the service approximately 10 months. Mrs. A.'s allotment was $85. She was not employed during her pregnancy. She lived with her sister and brother-in-law and their family during and after her pregnancy. She made no financial contribution to the household, but did all the housekeeping while her sister worked. Her allotment at time of interview was $107.50. For three weeks after her delivery, she lived in her mother's home while convalescing. At the end of that period, she moved back into her sister's household.

Medical Care: Mrs. A. had the services of a private obstetrician for her prenatal care, delivery, and postpartum care. Her first prenatal care was during the third month. She saw her doctor eight or nine times during pregnancy. Hospitalization was at a private hospital, about 35 miles from her home. Mrs. A. stayed in the hospital four days, in a ward bed. She has been seen by the obstetrician five times since delivery because of complications. The child is seen by a private pediatrician once a month.

Finances: Total cost for prenatal care, delivery, hospitalization, and postpartum care was $318. Of this, $175 was the physician's fee and $143 was hospitalization charges. The physician was paid in installments before delivery. The hospital was paid in full at the time of discharge. The charge for pediatric care amounts to $85 a year, paid in installments over a six month period.

Reasons for Choice and Attitude: Mrs. A. chose her physician because "my sister had that doctor." She "had not thought of using a public health department clinic." She definitely "would have chosen an Army facility, but Birmingham was closed and there was nothing reasonably near, Long Beach and Oceanside were much too far." She said, "If I didn't have my sister, we wouldn't have got by." She refused a blood transfusion that was recommended by her physician when she heard what the blood would cost, because "I didn't have the money." She "talked the doctor out of it." She said, "I paid the bills, but had nothing left. I had barely enough money for all the other things." All bills were paid from her allotment check. She said, "I had to take everything I had, my whole allotment—and had just nothing left, but I had to pay it and I got it all paid up."

Case 2.—Background: Mrs. B., aged 19, has lived in the Los Angeles area most of her life. Her husband, aged 22, was a sergeant in the Marine Corps, stationed about 80 miles east of Los Angeles. He had been in the service four years at the time of the birth of their first child. During the pregnancy, Mrs. B. lived with her husband in a trailer. She came into Los Angeles for her medical care and for the delivery of the child. Since the birth of the child, Mr. B. has been discharged from the Marine Corps. They are now living in the Los Angeles area in an independent household. Mrs. B. worked during the first two months of her pregnancy but has not been employed since. During the pregnancy she received an allotment of $127.50 per month.

Medical Care: Mrs. B. had the services of a private obstetrician for her maternity care. She was seen by the physician twice a month during her pregnancy. She came to Los Angeles for these visits—a distance of approximately 80 miles. Hospitalization was five days in a semiprivate room at a small hospital. Since the birth of the child there has been one postpartum examination. The child was first under the care of a private pediatrician and is now receiving care from a private general practitioner.

Finances: The total cost for prenatal, delivery, hospitalization, and postpartum care was $220. Of this, the physician's fees were $120. The hospital care cost $100. The physician was paid $50 through Blue Cross insurance. The remaining $70 was borrowed from Mrs. B.'s mother, and was paid to the physician in a lump sum after delivery. The hospital was paid in a lump sum at time of discharge. The $100 for this bill also was borrowed from Mrs. B.'s mother. The pediatric care has been paid for at each visit from Mr. B.'s salary. Mrs. B. did not know what the total cost had been to date.

Attitude and Reasons for Choice: Mrs. B. used the services of a private obstetrician because "my sister-in-law had her two babies with him." She said she didn't use the facilities at the Marine base because "I didn't want to, because you see one doctor in X, then they rush you to Y for your delivery and a different doctor takes care of you then." She didn't know about the county or city public health department clinics. She said "I might have used them; my husband may not have felt good about it, but it certainly would be a big help to some of the girls. Probably the care is just as good, too." She felt that the prenatal care she had received was excellent. She chose a private hospital for delivery rather than a military facility, because she thought "military care is not too good. You don't get any individual attention. They aren't careful." Though apparently she would have considered using a public health department clinic, the notion of a county hospital was something very different. She said, "Oh, my mother wouldn't want me to go there." In terms of the total financial situation, Mrs. B. said, "We were all right, we were very lucky compared to the other girls. We paid off my mother when my husband got his money from the State" (his veteran's bonus).

DELIVERY IN MILITARY HOSPITALS

Case 3.—Background: Mrs. C. was a 23-year-old woman who had lived in the Los Angeles area for two years at the time of the birth of her first child. Her husband, 27, a seaman first class in the Navy, was stationed in Virginia. During her pregnancy, she received an allotment of $85 a month. She worked until three weeks before the birth of the baby, earning approximately $45 a week. She shares a household with a roommate, paying half the rent and buying her own food. She has moved once since the birth of her child. Her husband is still in the service. She now receives an allotment of $147 and has not worked since the birth of the child.

Medical Care: Mrs. C. used the services of a private obstetrician and a Navy infirmary. She began her prenatal care with the obstetrician in her second month and continued with this physician through her eighth month. She then made one visit to a Navy infirmary for her final check-up. Delivery and hospitalization for four days were at a Navy hospital. She was examined at six weeks postpartum by a private gynecologist, and her baby is under the care of a private pediatrician.

Finances: Cost for prenatal care was $55 for the private physician. There was no charge for delivery, and only token payment ($1.75 per day) for hospitalization. Postpartum care cost approximately $10 plus $4 for each injection treatment.

Attitudes and Reasons for Care: Mrs. C. indicated she chose a private obstetrician for care because "I was sick at the beginning of my pregnancy and couldn't wait for a clinic appointment at the Navy infirmary." She didn't know of the existence of private hospital clinics, nor did she know of the existence of city or county public health department clinics.

She said she would have gone to the Navy infirmary, if she "hadn't had to wait half a day." She indicated she had first made an appointment at the Navy infirmary, waited three hours to see a physician, and then cancelled the appointment. She was "too sick to wait." As to her choice of the Navy hospital for hospital care, she said, "It was a matter of finances. I didn't have the money to go any place else." She would have gone to a private hospital if she had had the money. She said, "My father died just before the baby came and I used what I saved from my salary as well as my allotment to pay for his funeral." She did not know of the existence of county hospital facilities. She thought her care with her private doctor was good. She also said, "The only thing I didn't like about the Navy infirmary was the waiting." She was pleased with her hospital care: "It was awfully nice. The food was good and the treatment was very nice." As to the financial situation, she "didn't feel her doctor had charged her too much," but she did feel financial hardship "because of the extra expenses of (her) father's funeral."

Case 4.—Background: Mrs. D., aged 20, has lived in the Los Angeles area for approximately one year. At the time of the delivery of her first child her husband was a petty officer in the Navy, stationed in the Los Angeles area, and had been in the service for one and one-half years. Mrs. D. was living in an independent household with her husband, who was home most evenings. Her allotment was $127.50. This, plus her husband's income, made a total monthly income af approximately $220. Mrs. D. was not employed during her pregnancy. There has not been any change in the social situation since the birth of the child.

Medical Care: Mrs. D. used the services of a Navy infirmary for her prenatal and postpartum care and for her child's pediatric care. She delivered at a Navy hospital. Prenatal care began in the sixth month. She visited the infirmary once a month until the last two months, at which time she went every two weeks until the last month. During her last month, she visited the infirmary weekly. She was hospitalized for 10 days in a ward. Mrs. D. had a postpartum check-up at the Navy infirmary three months after her delivery. The child was seen for pediatric care at the Navy infirmary 15 days after his birth and then monthly.

Finances: There were no charges for maternity or pediatric care in this case, except a token payment ($1.75 per day) for hospitalization.

Attitude and Reasons for Choice: Mrs. D. said she chose the Navy infirmary for prenatal care because "I'm in the Navy and I'm entitled to that care." "Some of the guys are uppity and said they never would send their wives to the Navy infirmary but I don't believe in that." She had tried to get an appointment at the infirmary as soon as she arrived in Los Angeles when she was four months pregnant; however, she could not get an appointment until her sixth month. She did not know of the existence of public health department clinics in the Los Angeles area, but said "I would not have gone anywhere else, when I could get free care through the Navy." Regarding prenatal care, she "had no complaint about it except that you have to wait, and it's a long way to go." In regard to her hospital care, she chose a Navy hospital because "it was free." It never occurred to her to use a private hospital and she didn't know of the existence of county hospital facilities. She said, "It was far to go, but I had very good care. I had a lot of trouble, and they were very nice."

DELIVERY IN A COUNTY HOSPITAL

Case 5.—Background: Mrs. E. was a 20-year-old woman who had lived in the Los Angeles area five months at the time of the birth of her first child. Her husband was a corporal in the Army, stationed at a camp in northern California. He had been in the service nine months. Mrs. E. lived with her sister and her sister's family. She contributed about $40 a month to the household. Her allotment during her pregnancy was $85. She worked during the first three months of her pregnancy as a waitress, earning approximately $32 a week. Mrs. E. moved into her mother's household after the birth of the child and lived there about five months, then moved back into her sister's household. With the birth of her child, her allotment was increased to $127.50. Her husband is now stationed in Korea and "I think he is a sergeant." Mrs. E. worked for two months after the birth of the child, earning approximately $55 a week. The contribution to the sister's household has remained the same.

Medical Care: Mrs. E. used the services of an Army infirmary for prenatal, postpartum and pediatric care. She delivered at a county hospital. Prenatal care began in the fourth month. Mrs. E. went to the infirmary once a month, by public transportation. She said it took approximately one hour to get there. She was hospitalized for five days, in a ward bed. She was seen at the infirmary for a postpartum examination at six weeks. The child has been taken to the infirmary approximately once a month since its birth.

Finances: Medical care at the infirmary was free. Mrs. E. has not received a bill for hospitalization.[5]

Attitude and Reasons for Choice: Mrs. E. indicated that "I could not afford private care," and that was why she chose the military facility for her prenatal care. She said, "I liked my care and only wish there had been a (military) hospital closer that I could have gone to." In addition to her prenatal care at the Army infirmary, it was necessary for her to go to a Navy hospital twice during her pregnancy, for "extra care and blood transfusion." Regarding her choice of the hospital, she said, "It was the only place I could afford to go. Private hospitals are too expensive and the military hospital was much too far. I could have never made it there on time." Her general attitude about the total maternity situation was, "It was wonderful to get everything free."

Case 6.—Background: Mrs. F., aged 24, has lived in Los Angeles all her life. Her husband, aged 23, is a private in the Army. He had been in the service approximately three months at the time of delivery. Mrs. F. received an allotment of $85. She worked until her seventh month of pregnancy as a waitress and earned $35 per week. She lived in her own apartment in a low-cost hotel during her pregnancy; her mother lived in the same hotel but they did not share quarters. Mrs. F.'s allotment was cut off at the time of the birth of her child, because her husband was AWOL. He is now waiting court martial at an Army camp. She is living on general relief, receiving $75 a month from the county. She has not worked since the birth of the child.

Medical Care: Mrs. F. used the services of a city public health department prenatal clinic. Her first visit to the clinic was during the fifth month. She went approximately every two weeks. The clinic was close enough for her to walk. Hospitalization for six days at the time of delivery was at a county hospital, in a ward. There have been no postpartum examinations since discharge from the hospital. The child has had pediatric care at a public health department clinic once a month since its birth. It had bronchitis shortly after birth and was hospitalized three days at the same county hospital.

Finances: There were no charges for prenatal, delivery, postpartum, or pediatric care. Mrs. F. has not been billed for hospitalization.

Attitudes and Reasons for Choice: Mrs. F. indicated she "could not afford a private doctor and the military clinic was too far." She said, "I would have preferred to have had my own doctor if I could have afforded it." She selected the county hospital for delivery and hospitalization "for the same reason." She indicated she was satisfied with the care she received.

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[5] Patients in labor are eligible for admission to the county hospitals either as medically indigent residents of the county or because they are medical emergencies. Those who are dependent on a service allotment and who are or whose husbands are residents of Los Angeles County are not currently billed. They may at a later time, if an increase in their assets warrants, receive bills for the cost of care. The others are billed soon after discharge. Under state law and county ordinance, the cost of all medical care given is reimbursable and the county may attempt to recover the cost. Persons who appear to have no ability to pay are not pressed for payment.

THE LEISURE CORNER

THE FLOWERING HOBBY

A well-chosen hobby growing naturally out of innate desires, needs, and abilities makes a joyful contribution to the art of living when things go well in the practice of medicine and at the same time provides a sphere of activity to which it is possible to turn for solace when the problems of a busy medical life enlarge. High on the list of activities that can be pursued as a hobby is the ancient and enjoyable art of gardening. Raising flowers appeals to several senses and is full of rewards and surprises, for, besides the fact that it can be shared with others and thereby doubly enjoyed, its study and cultivation may also be carried as far and wide and made as specialized as the interested hobbyist wishes. Actually, horticulturists are ideal hobbyists for riding their hobby horses along garden paths and through the bypaths of suburban and metropolitan back yards, pausing to sniff graciously at the humble flower pot. To enter this kind of world, a love of flowers and plants and a bit of earth are the only equipment necessary to start the busy physician off on an interest that can lead to such highly specialized activities as the cultivation of prize-winning flowers.

Some years ago Charles Dudley Warner, the writer, expressed the belief that sooner or later an inborn love for the soil eventually makes itself known to every human being. "Mud pies," he asserted, "gratify one of our first and best instincts. Therefore, for those who ask, 'Who should attempt growing flowers?' the answer is 'Anyone who likes them well enough to take care of them.'" Since many flowers will thrive almost under any conditions if given reasonable attention, raising flowers is a pursuit suitable for physicians who reside in suburbs and rural communities and for city dwellers who are landless but not potless, or who, at best, are owners of a tiny back yard. Today more and more miniature gardens sprout in metropolitan environs; flowers need be neither confined to back yards and roofs nor limited to the restrictions imposed by indoor gardens or window boxes. Literally, a green fairyland can be the lot of the urban dweller who, by watching flowers and plants unfold their leaves and develop their blossoms, may indulge in flights of the imagination that will convey him above imaginary fields and mountainsides.

Flowers are mostly grown in gardens where, appropriately enough, they either mingle with other flowers or occupy an individual corner all by themselves. It is in home gardens that much experimental work on the propagation and growth of flowers has been carried on, and it is in precisely this milieu that the flowering hobbyist notices their virtues and their flaws. Here, the terminology of flower culture will carry the physician back to the day when he studied biology as a medical student—genes and chromosomes, pollen, fungi, viruses, and molds. There are vectors to be dealt with, and the process of hybridizing, and the breeding out of undesired traits in flowers while retaining more desirable characteristics.

Take the case of the African violet (Saintpaulia), a favorite American house plant, which grows well and blooms almost endlessly under conditions imposed by the average house dwelling, but which will not flourish so readily as to permit the disinterested person to neglect it or to lose interest in it. More than a half century ago the African violet was discovered in the hilly regions of eastern tropical Africa. From the day of its discovery, it took the horticultural world by storm, so that when in the autumn of 1946 the first African violet show was sponsored in Atlanta, Ga., the ensuing thousands of visiting violet fans required the attention of police to maintain traffic and order. Today, few persons dispute the possibilities of the African violet as a hobby plant for collectors, and at least 175 varieties appear by name in lists gathered throughout the United States.

While many plants are grown for their foliage, this is not the case of the African violet; since its native habitat is in shady nooks and in wooded places, it does not require a flood of sunshine. Indeed, too much sunshine affects foliage adversely, turning it yellow, burning the margin of leaves, or causing malformation of leaf and flower. In general, it flowers well in any light situation where brightness is somewhat diffused. The stronger the light the deeper the color tones and the greater the tendency to flower. The most satisfactory circumstance surrounding the African violet is its tolerance to the usual household heat and its ability to thrive in an atmosphere up to 75 F. A temperature less than 60 F impedes both growth and flowering. Many hobbyists have found that African violets bloom and thrive more freely if each plant is set on a pebble-filled saucer with some water in it as a ready means of humidifying the surrounding air.

African violets are easily propagated, and they multiply readily by means of division or through leaf propagation; moreover, they can be raised from seed, and from a single seed pod it is possible to obtain as many different varieties as there are seeds. Not so long ago there was but one type of Africa violet extant, a species known to the initiated as Saintpaulia ionanatha. Now there are scores. Definite strains and varieties are being grown, with purples, pinks, and whites abounding.

In the United States alone approximately 75 species of North American violets are found, several kinds having what botanists call cleistogamous flowers. These are flowers that follow the early, showy-colored blossoms of the plant and are produced on very short scapes hidden beneath the leaves and sometimes in the soil itself. Cleistogamous flowers have no petals, never open, and contain very little pollen; as they are confined wholly within the blossom, the seeds are invariably fertile. Among the commoner species of violets producing cleistogamous flowers are the round-leaf violet, butterfly violet, palm violet, and the blue marsh violet.

Numerous violets are propagated from seed, while many kinds are due to division and to spread by means of short runners. In favorable locations certain species, for example, the blue marsh violet in the garden and the sweet white violet in the woodland, tend to become obnoxious, since they seed so freely and grow so rapidly that more fragile flowers encountered by them become half smothered.

Violets are further classified into two groups: a stemless group, in which leaves and scapes rise directly from the root stock or from runners, including such specimens as birdsfoot violet, blue marsh violet, and palm violet, and a second group, having tall, leafy stems, and whose best known members are the downy yellow violet and the Canada violet. A two-colored birdsfoot violet has upper petals of rich, royal purple and lower ones of pale blue, making it probably the showiest of all violets. The birdsfoot violet belongs to the stemless species and is easily naturalized in almost any soil that is not too wet. The two-colored violet nearly always blossoms in autumn and in spring.

The butterfly violet is one of the strongest growing, most persistent members of the violet species, seeding itself so as to form a veritable ground cover. It grows from 6 to 10 inches in height; its flowers are quite large; and it varies in color from deep blue to white. The Confederate violet, consisting of blue and gray colors, is apparently a variety of this species. The palm violet derives its name from the shape of its leaves, which are large, substantial clumps a foot in height that completely cover the ground in moist or fairly dry shade. The roundleaf violet is one of the earliest wildflowers to bloom, while the downy yellow violet is a foot tall.

The sweet white violet blossoms in the spring, and the tiny white flowers on its stems are only two to three inches tall and are very fragrant. Like most violets, the leaves increase rapidly in size after blooming. The Canada violet, whose fragrant flowers are white with a purplish tinge and blossom more or less throughout the summer, grow a foot or more tall. Finally, the primrose-leaved violet derives its name from the shape of its leaves. This species thrives most satisfactorily in moist soil that contains a considerable amount of sand.

What has been said about violets applies equally well to a vast number of other flowers and plants, be they roses, orchids, irises, lilies, or camellias. All in all, an interest in flowers can easily become a hobby that consists of doing what one wants to do, rather than a fad that is pursued because other persons do it.

She said she would have gone to the Navy infirmary, if she "hadn't had to wait half a day." She indicated she had first made an appointment at the Navy infirmary, waited three hours to see a physician, and then cancelled the appointment. She was "too sick to wait." As to her choice of the Navy hospital for hospital care, she said, "It was a matter of finances. I didn't have the money to go any place else." She would have gone to a private hospital if she had had the money. She said, "My father died just before the baby came and I used what I saved from my salary as well as my allotment to pay for his funeral." She did not know of the existence of county hospital facilities. She thought her care with her private doctor was good. She also said, "The only thing I didn't like about the Navy infirmary was the waiting." She was pleased with her hospital care: "It was awfully nice. The food was good and the treatment was very nice." As to the financial situation, she "didn't feel her doctor had charged her too much," but she did feel financial hardship "because of the extra expenses of (her) father's funeral."

Case 4.—Background: Mrs. D., aged 20, has lived in the Los Angeles area for approximately one year. At the time of the delivery of her first child her husband was a petty officer in the Navy, stationed in the Los Angeles area, and had been in the service for one and one-half years. Mrs. D. was living in an independent household with her husband, who was home most evenings. Her allotment was $127.50. This, plus her husband's income, made a total monthly income af approximately $220. Mrs. D. was not employed during her pregnancy. There has not been any change in the social situation since the birth of the child.

Medical Care: Mrs. D. used the services of a Navy infirmary for her prenatal and postpartum care and for her child's pediatric care. She delivered at a Navy hospital. Prenatal care began in the sixth month. She visited the infirmary once a month until the last two months, at which time she went every two weeks until the last month. During her last month, she visited the infirmary weekly. She was hospitalized for 10 days in a ward. Mrs. D. had a postpartum check-up at the Navy infirmary three months after her delivery. The child was seen for pediatric care at the Navy infirmary 15 days after his birth and then monthly.

Finances: There were no charges for maternity or pediatric care in this case, except a token payment ($1.75 per day) for hospitalization.

Attitude and Reasons for Choice: Mrs. D. said she chose the Navy infirmary for prenatal care because "I'm in the Navy and I'm entitled to that care." "Some of the guys are uppity and said they never would send their wives to the Navy infirmary but I don't believe in that." She had tried to get an appointment at the infirmary as soon as she arrived in Los Angeles when she was four months pregnant; however, she could not get an appointment until her sixth month. She did not know of the existence of public health department clinics in the Los Angeles area, but said "I would not have gone anywhere else, when I could get free care through the Navy." Regarding prenatal care, she "had no complaint about it except that you have to wait, and it's a long way to go." In regard to her hospital care, she chose a Navy hospital because "it was free." It never occurred to her to use a private hospital and she didn't know of the existence of county hospital facilities. She said, "It was far to go, but I had very good care. I had a lot of trouble, and they were very nice."

DELIVERY IN A COUNTY HOSPITAL

Case 5.—Background: Mrs. E. was a 20-year-old woman who had lived in the Los Angeles area five months at the time of the birth of her first child. Her husband was a corporal in the Army, stationed at a camp in northern California. He had been in the service nine months. Mrs. E. lived with her sister and her sister's family. She contributed about $40 a month to the household. Her allotment during her pregnancy was $85. She worked during the first three months of her pregnancy as a waitress, earning approximately $32 a week. Mrs. E. moved into her mother's household after the birth of the child and lived there about five months, then moved back into her sister's household. With the birth of her child, her allotment was increased to $127.50. Her husband is now stationed in Korea and "I think he is a sergeant." Mrs. E. worked for two months after the birth of the child, earning approximately $55 a week. The contribution to the sister's household has remained the same.

Medical Care: Mrs. E. used the services of an Army infirmary for prenatal, postpartum and pediatric care. She delivered at a county hospital. Prenatal care began in the fourth month. Mrs. E. went to the infirmary once a month, by public transportation. She said it took approximately one hour to get there. She was hospitalized for five days, in a ward bed. She was seen at the infirmary for a postpartum examination at six weeks. The child has been taken to the infirmary approximately once a month since its birth.

Finances: Medical care at the infirmary was free. Mrs. E. has not received a bill for hospitalization.[5]

Attitude and Reasons for Choice: Mrs. E. indicated that "I could not afford private care," and that was why she chose the military facility for her prenatal care. She said, "I liked my care and only wish there had been a (military) hospital closer that I could have gone to." In addition to her prenatal care at the Army infirmary, it was necessary for her to go to a Navy hospital twice during her pregnancy, for "extra care and blood transfusion." Regarding her choice of the hospital, she said, "It was the only place I could afford to go. Private hospitals are too expensive and the military hospital was much too far. I could have never made it there on time." Her general attitude about the total maternity situation was, "It was wonderful to get everything free."

Case 6.—Background: Mrs. F., aged 24, has lived in Los Angeles all her life. Her husband, aged 23, is a private in the Army. He had been in the service approximately three months at the time of delivery. Mrs. F. received an allotment of $85. She worked until her seventh month of pregnancy as a waitress and earned $35 per week. She lived in her own apartment in a low-cost hotel during her pregnancy; her mother lived in the same hotel but they did not share quarters. Mrs. F.'s allotment was cut off at the time of the birth of her child, because her husband was AWOL. He is now waiting court martial at an Army camp. She is living on general relief, receiving $75 a month from the county. She has not worked since the birth of the child.

Medical Care: Mrs. F. used the services of a city public health department prenatal clinic. Her first visit to the clinic was during the fifth month. She went approximately every two weeks. The clinic was close enough for her to walk. Hospitalization for six days at the time of delivery was at a county hospital, in a ward. There have been no postpartum examinations since discharge from the hospital. The child has had pediatric care at a public health department clinic once a month since its birth. It had bronchitis shortly after birth and was hospitalized three days at the same county hospital.

Finances: There were no charges for prenatal, delivery, postpartum, or pediatric care. Mrs. F. has not been billed for hospitalization.

Attitudes and Reasons for Choice: Mrs. F. indicated she "could not afford a private doctor and the military clinic was too far." She said, "I would have preferred to have had my own doctor if I could have afforded it." She selected the county hospital for delivery and hospitalization "for the same reason." She indicated she was satisfied with the care she received.

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[5] Patients in labor are eligible for admission to the county hospitals either as medically indigent residents of the county or because they are medical emergencies. Those who are dependent on a service allotment and who are or whose husbands are residents of Los Angeles County are not currently billed. They may at a later time, if an increase in their assets warrants, receive bills for the cost of care. The others are billed soon after discharge. Under state law and county ordinance, the cost of all medical care given is reimbursable and the county may attempt to recover the cost. Persons who appear to have no ability to pay are not pressed for payment.

THE LEISURE CORNER

THE FLOWERING HOBBY

A well-chosen hobby growing naturally out of innate desires, needs, and abilities makes a joyful contribution to the art of living when things go well in the practice of medicine and at the same time provides a sphere of activity to which it is possible to turn for solace when the problems of a busy medical life enlarge. High on the list of activities that can be pursued as a hobby is the ancient and enjoyable art of gardening. Raising flowers appeals to several senses and is full of rewards and surprises, for, besides the fact that it can be shared with others and thereby doubly enjoyed, its study and cultivation may also be carried as far and wide and made as specialized as the interested hobbyist wishes. Actually, horticulturists are ideal hobbyists for riding their hobby horses along garden paths and through the bypaths of suburban and metropolitan back yards, pausing to sniff graciously at the humble flower pot. To enter this kind of world, a love of flowers and plants and a bit of earth are the only equipment necessary to start the busy physician off on an interest that can lead to such highly specialized activities as the cultivation of prize-winning flowers.

Some years ago Charles Dudley Warner, the writer, expressed the belief that sooner or later an inborn love for the soil eventually makes itself known to every human being. "Mud pies," he asserted, "gratify one of our first and best instincts. Therefore, for those who ask, 'Who should attempt growing flowers?' the answer is 'Anyone who likes them well enough to take care of them.' " Since many flowers will thrive almost under any conditions if given reasonable attention, raising flowers is a pursuit suitable for physicians who reside in suburbs and rural communities and for city dwellers who are landless but not potless, or who, at best, are owners of a tiny back yard. Today more and more miniature gardens sprout in metropolitan environs; flowers need be neither confined to back yards and roofs nor limited to the restrictions imposed by indoor gardens or window boxes. Literally, a green fairyland can be the lot of the urban dweller who, by watching flowers and plants unfold their leaves and develop their blossoms, may indulge in flights of the imagination that will convey him above imaginary fields and mountainsides.

Flowers are mostly grown in gardens where, appropriately enough, they either mingle with other flowers or occupy an individual corner all by themselves. It is in home gardens that much experimental work on the propagation and growth of flowers has been carried on, and it is in precisely this milieu that the flowering hobbyist notices their virtues and their flaws. Here, the terminology of flower culture will carry the physician back to the day when he studied biology as a medical student—genes and chromosomes, pollen, fungi, viruses, and molds. There are vectors to be dealt with, and the process of hybridizing, and the breeding out of undesired traits in flowers while retaining more desirable characteristics.

Take the case of the African violet (Saintpaulia), a favorite American house plant, which grows well and blooms almost endlessly under conditions imposed by the average house dwelling, but which will not flourish so readily as to permit the disinterested person to neglect it or to lose interest in it. More than a half century ago the African violet was discovered in the hilly regions of eastern tropical Africa. From the day of its discovery, it took the horticultural world by storm, so that when in the autumn of 1946 the first African violet show was sponsored in Atlanta, Ga., the ensuing thousands of visiting violet fans required the attention of police to maintain traffic and order. Today, few persons dispute the possibilities of the African violet as a hobby plant for collectors, and at least 175 varieties appear by name in lists gathered throughout the United States.

While many plants are grown for their foliage, this is not the case of the African violet; since its native habitat is in shady nooks and in wooded places, it does not require a flood of sunshine. Indeed, too much sunshine affects foliage adversely, turning it yellow, burning the margin of leaves, or causing malformation of leaf and flower. In general, it flowers well in any light situation where brightness is somewhat diffused. The stronger the light the deeper the color tones and the greater the tendency to flower. The most satisfactory circumstance surrounding the African violet is its tolerance to the usual household heat and its ability to thrive in an atmosphere up to 75 F. A temperature less than 60 F impedes both growth and flowering. Many hobbyists have found that African violets bloom and thrive more freely if each plant is set on a pebble-filled saucer with some water in it as a ready means of humidifying the surrounding air.

African violets are easily propagated, and they multiply readily by means of division or through leaf propagation; moreover, they can be raised from seed, and from a single seed pod it is possible to obtain as many different varieties as there are seeds. Not so long ago there was but one type of Africa violet extant, a species known to the initiated as Saintpaulia ionanatha. Now there are scores. Definite strains and varieties are being grown, with purples, pinks, and whites abounding.

In the United States alone approximately 75 species of North American violets are found, several kinds having what botanists call cleistogamous flowers. These are flowers that follow the early, showy-colored blossoms of the plant and are produced on very short scapes hidden beneath the leaves and sometimes in the soil itself. Cleistogamous flowers have no petals, never open, and contain very little pollen; as they are confined wholly within the blossom, the seeds are invariably fertile. Among the commoner species of violets producing cleistogamous flowers are the round-leaf violet, butterfly violet, palm violet, and the blue marsh violet.

Numerous violets are propagated from seed, while many kinds are due to division and to spread by means of short runners. In favorable locations certain species, for example, the blue marsh violet in the garden and the sweet white violet in the woodland, tend to become obnoxious, since they seed so freely and grow so rapidly that more fragile flowers encountered by them become half smothered.

Violets are further classified into two groups: a stemless group, in which leaves and scapes rise directly from the root stock or from runners, including such specimens as birdsfoot violet, blue marsh violet, and palm violet, and a second group, having tall, leafy stems, and whose best known members are the downy yellow violet and the Canada violet. A two-colored birdsfoot violet has upper petals of rich, royal purple and lower ones of pale blue, making it probably the showiest of all violets. The birdsfoot violet belongs to the stemless species and is easily naturalized in almost any soil that is not too wet. The two-colored violet nearly always blossoms in autumn and in spring.

The butterfly violet is one of the strongest growing, most persistent members of the violet species, seeding itself so as to form a veritable ground cover. It grows from 6 to 10 inches in height; its flowers are quite large; and it varies in color from deep blue to white. The Confederate violet, consisting of blue and gray colors, is apparently a variety of this species. The palm violet derives its name from the shape of its leaves, which are large, substantial clumps a foot in height that completely cover the ground in moist or fairly dry shade. The roundleaf violet is one of the earliest wildflowers to bloom, while the downy yellow violet is a foot tall.

The sweet white violet blossoms in the spring, and the tiny white flowers on its stems are only two to three inches tall and are very fragrant. Like most violets, the leaves increase rapidly in size after blooming. The Canada violet, whose fragrant flowers are white with a purplish tinge and blossom more or less throughout the summer, grow a foot or more tall. Finally, the primrose-leaved violet derives its name from the shape of its leaves. This species thrives most satisfactorily in moist soil that contains a considerable amount of sand.

What has been said about violets applies equally well to a vast number of other flowers and plants, be they roses, orchids, irises, lilies, or camellias. All in all, an interest in flowers can easily become a hobby that consists of doing what one wants to do, rather than a fad that is pursued because other persons do it.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Ophthalmology, Chicago

49:481-590 (May) 1953

Preanesthetic Sedation and Analgesia for Intraocular Operations Done with Local Anesthesia. W. S. Atkinson.—p. 481.
*Effects of Experimentally Decreased or Increased Oxygen Supply in Some Ophthalmic Diseases: Practical Value for Diagnosis, Prognosis, and Treatment. G. Bietti.—p. 491.
Vascular Loops in Vitreous. T. Bisland.—p. 514.
Evaluation of Plastic Spectacle Lenses. A. H. Keeney and H. L. Duerson Jr.—p. 530.
Nutritional Dystrophy of Corneal Epithelium: Preliminary Report of Patients Reacting Favorably to Vitamin Therapy. P. J. Nañagas.—p. 536.
Diseases of the Retina. A. E. Maumenee.—p. 553.

Oxygen Supply in Ophthalmic Diseases.—The author studied the behavior of visual functions under modified oxygen supply in several ophthalmic diseases. A reduced oxygen supply to the visual apparatus was obtained by producing a general, more or less severe, anoxia by having the patient breathe an oxygen-poor mixture or by placing him in a depression chamber reproducing the conditions met in the normal atmosphere at between 13,000 and 26,000 ft. (3,900 and 7,800 m.). A reduction of the oxygen supply to only the retina and the optic nerve was obtained by exerting on the eyeball a graded amount of compression with a dynamometer, proportional to the arterial pressure of the retina. With such a technique, which produces only moderate changes of the visual functions in normal subjects, some visual deficiencies may be discovered, as follows: enlargement of the blind spot in early glaucoma; appearance of a central scotoma and pronounced decrease of visual acuity; reduction in the limits of the visual fields in certain neuroretinal diseases; occurrence of ignored hemianopsia in disorders of the intracranial optic pathways; severe impairment of seemingly normal muscle balance; impairment of the audiometric response, which appears to be typical for certain ocular diseases such as glaucoma; and an abnormal decrease of the flicker fusion frequency. Since the compression of the eyeball reduces the oxygen supply locally, while general anoxia involves the function of whole visual pathways, a difference in results of the two procedures sometimes permits localization of the lesion. The anoxia test is an additional diagnostic and prognostic procedure in the field of ocular diseases. Results of the author's study proved that the action of anoxia on the visual function is both peripheral and central. Additional studies were made by increasing the oxygen supply to the eye, chiefly through inhalation of pure oxygen at atmospheric pressure. This produced a reduction, or even disappearance, of scotomatous areas of the visual field, as well as improvement in the impaired visual functions in many ocular disorders. Areas that had not completely lost their function were revealed. The behavior of some visual functions under modified oxygen supply in several ophthalmic diseases represents a new procedure that may be of value in ophthalmology.

A.M.A. Arch. Pathology, Chicago

55:357-442 (May) 1953

Pathogenesis of Coronary Sclerosis. P. H. Lober.—p. 357.
Dynamics of Inflammation and of Repair: III. Effects of Tissue Extracts and of Protein Split Products upon Capillary Permeability and upon Leucocytes. V. H. Moon and G. A. Tershakovec.—p. 384.
Comparison of Pathologic Effects of Radiation in Weanling and Adult Rats. G. W. Casarett.—p. 393.
Spontaneous Cryptococcosis of Marmoset Monkeys in Panama. M. J. Takos and N. W. Elton.—p. 403.
*Myocarditis in Poliomyelitis. H. A. Teloh.—p. 408.
Experimental Aberrant Mediastinal Goiters (Thymic) in Rat. J. H. Van Dyke.—p. 412.
Development of Pigmentary Cirrhosis in Cooley's Anemia. J. Howell and J. P. Wyatt.—p. 423.

Myocarditis in Poliomyelitis.—The presence of acute myocarditis in patients dying of poliomyelitis has suggested that cardiac failure may be a principal or a contributing cause of death. The report is based on 47 fatal cases in which autopsies were done from 1942 to 1951, inclusive. Typical spinal and bulbar lesions of acute anterior poliomyelitis were present in all. Myocardial sections were fixed in Zenker's or alcohol-formaldehyde solutions, embedded in paraffin, and stained with hematoxylin and eosin. Acute myocarditis was found in 26 of the patients. During the epidemic of 1949, the incidence of myocarditis was much greater than in any other year (100%), and it was also severer. This corroborates evidence collected by other authors that during certain epidemics there are viscerotropic strains of the virus which may injure the myocardium. The occurrence of acute myocarditis could not be correlated with sex or age of the patient or with the occurrence of cardiac dilatation or hypertrophy. The significance of myocarditis in poliomyelitis is not fully understood. In many of the sections examined in this study, as well as in those reported in the literature, the inflammation is minimal and focal in distribution, and this fact raises a question of its functional significance. The myocarditis may be of only incidental importance, and the mechanism of its development remains unknown.

A.M.A. Arch. Surgery, Chicago

66:579-700 (May) 1953

Fibroblastic Stimulation of Rabbit Artery Adventitia by Marine Varnish, "Krylon," and Latex: Laboratory Study Related to Surgery of Congenital Cerebral Aneurysm. B. Woodhall and J. Golden.—p. 587.
Prevention of Experimental Esophageal Stricture by Cortisone: II. Control of Suppurative Complications by Penicillin. N. Rosenberg, P. J. Kunderman, L. Vroman and S. E. Moolten.—p. 593.
Anatomy of Biliary Ducts Within Human Liver: Analysis of Prevailing Pattern of Branchings and Major Variations of Biliary Ducts. J. E. Healey Jr. and P. C. Schroy.—p. 599.
Use of Crystalline Soybean Trypsin Inhibitor in Acute Hemorrhagic Pancreatitis in Dogs. H. L. Hoffman, J. Jacobs and S. O. Freedlander.—p. 617.
Homotransplantation of Dog Heart. H. G. Downie.—p. 624.
Abdominoperineal Operation for High Imperforate Anus in the Newborn. H. R. Butcher.—p. 637.
Postmastectomy Edema of Arm. W. R. Deaton Jr. and H. H. Bradshaw.—p. 641.
Primary Repair of Major Arterial Injuries: Report of 58 Battle Casualties. E. J. Jahnke Jr. and J. M. Howard.—p. 646.
Tryptic Débridement of Clotted Hemothorax: Experimental and Clinical Study. C. E. McCroskey and C. A. Hardin.—p. 650.
Roentgenologic Diagnosis of Traumatic Rupture of Thoracic Aorta. A. C. Wyman.—p. 656.
*Survey of Current Opinions Concerning Carcinoma of Breast Occurring During Pregnancy. J. H. Cheek.—p. 664.
Use of Polyethylene Tubing in Intravenous Therapy for Surgical Patients. P. Erwin, J. H. Strickler and C. O. Rice.—p. 673.

Carcinoma of Breast During Pregnancy.—A questionnaire concerning carcinoma of the breast during pregnancy was submitted to 55 physicians who had either published papers on the subject or who were considered to be especially interested in it. The questionnaire covered the following points: the number of cases of carcinoma of the breast developing during pregnancy, number of five year cures obtained, operability

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Titles marked with an asterisk (*) are abstracted.

rate, whether pregnancy following a previous radical mastectomy increases the chances of development of carcinoma in the remaining breast, advisability of interruption of pregnancy in a patient in whom carcinoma of the breast develops in the first, second, or third trimester of pregnancy, and advisability of tubal sterilization or ligation following radical mastectomy in the premenopausal woman to prevent further pregnancies. Replies to the questionnaire were received from 47 physicians, but not all of them commented on all five questions. The survey indicates that, although results of treatment of carcinoma of the breast in pregnancy are disappointing and the prognosis is poor, the prognosis need not be invariably hopeless. Occasional five year cures have been reported. None of the respondents considered pregnancy itself an absolute contraindication to surgery. Termination of pregnancy seems to be indicated, particularly if the cancer is discovered during the first half of gestation. There is general agreement that subsequent pregnancies should be avoided by women who have had mammary carcinoma, but most physicians thought that conventional contraceptive measures would be adequate. A few considered surgical castration advisable. Whether pregnancy may increase the chances of carcinoma developing in the remaining breast remains an unsettled point. Most of those who replied thought that it would not. Any hope for improvement of the prognosis lies in recognition of the growth at a stage when it is still operable. Obstetricians should examine the breasts of their patients at frequent intervals. Instruction of patients concerning technique of examination of their own breasts may be of considerable value.

American Journal of Hygiene, Baltimore

57:253-412 (May) 1953. **Partial Index**

Studies on Destruction of Bacterial Virus: III. Dynamics of Removal of Bacterial Virus (Bacteriophage Against Micrococcus Pyogenes Var. Albus) in Water by Flocculation with Aluminum Sulfate. S. L. Chang, P. C. G. Isaac and N. Baine.—p. 253.
Studies on Blood-Plasma Therapy in Experimental Poliomyelitis in Rhesus Monkeys. S. G. Lensen, O. E. Olson and L. P. Hedeman. —p. 267.
Studies on Nature of Immunity to Trichinella Spiralis in Parabiotic Rats. H. Zaiman.—p. 297.
Capillary-Tube Test for Leptospirosis. H. G. Stoenner.—p. 316.
Histoplasmin and Tuberculin Sensitivity Among Illinois Residents. W. G. Beadenkopf, J. T. Grayston, L. J. Savage and others.—p. 328.
•Cancer Detection: Analysis and Evaluation of 2,111 Examinations. E. Day, T. G. Rigney and L. F. Beck.—p. 344.
Propagation of Endamoeba Histolytica in Tissue-Bearing Culture Without Accompanying Bacteria or Other Microorganisms. J. G. Shaffer, H. S. Sienkiewicz and J. E. Washington.—p. 366.
Studies on Multiple Sclerosis in Winnipeg, Manitoba, and New Orleans, Louisiana. I. Prevalence: Comparison Between Patient Groups in Winnipeg and New Oreans. K. B. Westlund and L. T. Kurland.—p. 380.

Cancer Detection.—This paper reports the results of 2,111 initial examinations of adults at the Kips Bay-Yorkville Cancer Detection Center, a pilot project of the department of public health and preventive medicine of Cornell Medical College and the New York City Department of Health. The study was undertaken to evaluate cancer detection in adult health services. Twenty-seven (1.3%) of the examinees were found to have cancer, even though the group had been prescreened to exclude persons with symptoms suggesting malignancy. More than half of the patients found to have cancer had no symptoms. These instances of asymptomatic cancer (the true cancer detections) constituted 0.8% of all persons examined. Precancerous neoplasms and other lesions requiring care as a precaution against cancer contributed 14.3 diagnoses on the average for each 100 persons examined. Polyps of the colon and rectum constituted the largest component of the precancerous group. Routine proctosigmoidoscopy revealed neoplastic lesions (mostly polyps) in 5.0% of males and 3.7% of females on first examination. An additional 2.7% showed such lesions on reexamination after approximately one year. Pathological conditions not related to cancer were almost nine times as numerous as cancer and precancerous lesions. Such diagnoses averaged 131 per 100 examinees, or more than one for each person examined. The authors feel that the following are among the most significant contributions of the cancer detection service: 1. The diagnosis of a small number of cases of asymptomatic cancer. 2. The impetus given to the study and the treatment of conditions assumed to be precancerous. 3. The detection in presumably healthy adults of a large number of pathological conditions unrelated to cancer. 4. The initiation of corrective measures and early treatment by referral.

American Journal of Medical Sciences, Philadelphia

225:469-588 (May) 1953

•Clinical Significance of Apical and Aortic Systolic Heart Murmurs (Without Diastolic Murmurs) as Heard with Stethoscope. P. D. White, R. S. Schaaf, T. B. Counihan and B. Hall.—p. 469.
Nature of Circulatory Failure in Accidental Death. H. G. Swann, R. Anigstein and C. C. Clark.—p. 475.
Sodium Salicylate in Rheumatic Fever: Effect of Adjuvant Medication. L. L. Henderson.—p. 480.
•Association of Polycystic Kidneys with Intracranial Aneurysms and Other Related Disorders. N. H. Bigelow.—p. 485.
Anticoagulant Effect of Phenylindanedione in Thromboembolic Disorders. K. W. G. Brown and R. L. MacMillan.—p. 495.
Chronic Atrophic Gastritis: Symptomatic Proclivities. E. D. Palmer. —p. 501.
Arterial Hypertension Among Indians of Southwestern United States. B. M. Cohen.—p. 505.
Variants of "March Hemoglobinuria." B. H. Chaiken, E. J. Whalen, N. Learner and others.—p. 514.
Bedside Method for Determining Serum Chlorides as an Aid in Detecting Chloride Depletion Syndrome in Patients Receiving Mercurial Diuretics. L. T. Gziou and J. J. Silverman.—p. 521.
Antagonism and Addition from Combinations of Aureomycin and Penicillin in Treatment of Pneumococcic Infections in Mice. G. G. Jackson, M. H. Lepper, J. Seto and H. F. Dowling.—p. 525.
Value of Dihydrostreptomycin in Pre-Operative Preparation of Gut. M. I. Riddell, H. S. Morton and E. G. D. Murray.—p. 535.
Use of Chloromycetin in Treatment of Salmonella Carriers in State Institution. I. A. LaCore and J. H. Conlin.—p. 547.
Metabolic Effects, Toxicity and Excretion of Calcium N-Cyclohexylsulfamate (Sucaryl) in Man. J. A. Schoenberger, D. M. Rix, A. Sakamoto and others.—p. 551.
Intravenous Use of Combination of Sodium Para-Aminosalicylate and Polyvinyl Pyrrolidone in Chemotherapy of Tuberculosis. W. Weiss, M. Seven and G. M. Eisenberg.—p. 560.
Surgery of Acquired Valvular Heart Disease. M. L. Kramer.—p. 565.

Apical and Aortic Systolic Heart Murmurs.—Results of a follow-up study of 1,212 patients with cardiovascular disease with slight or moderate systolic murmurs were compared with those of 187 patients with loud or very loud systolic murmurs and with those of 200 patients who had no murmurs. None of the patients had diastolic murmurs, and the systolic murmurs were loudest at the cardiac apex or aortic valve. There were slightly more patients with slight or moderate murmurs than patients without murmurs; the ratio of persons with slight or moderate murmurs to patients with loud and very loud murmurs was 6½:1. The ratio of men to women (3:2) and the age incidence (most of the patients were over 50) were the same for all three groups. Patients with coronary or hypertensive heart disease, or both, outnumbered those with other types of heart disease in all three groups. There seemed to be a great difference in the prevalence of rheumatic heart disease, however, which was observed in 27% of the patients with loud murmurs, in only 3% of those with lesser murmurs, and in none of those without murmurs. There were patients with other or unidentified types of heart disease. The systolic murmur was maximal over the aortic valve rather than the apex in about one-fifth of the patients with murmurs, but in 26% of those with lesser murmurs there seemed to be little difference between the aortic and apical intensities. Those with the loudest murmurs had shorter lives than those with lesser or no murmurs, but occasionally patients (8%) with loud and very loud murmurs were still alive more than 15 years after the murmurs were discovered. The relation of the intensity of the murmurs to mortality was qualified by three other important findings: The mortality among men was greater than that among women in all the groups. Pre-existing coronary or hypertensive heart disease was much more serious than rheumatic heart disease. Younger age was probably a factor in some of the rheumatic cases. No evidence was revealed that aortic systolic murmurs without diastolic murmurs have any more unfavorable prognosis per se than apical systolic murmurs. One of the most impressive findings was that moderate to great heart enlargement predisposed to early death in all of the patients. This was a more important factor in all the three groups of patients than any other, including loudness of the murmur itself. Many murmurs reveal the presence of strain-producing valvular defects, but such defects vary greatly in importance, as do patients in their ability to resist such strain.

Association of Polycystic Kidneys with Intracranial Aneurysms.—Congenital intracranial aneurysm and polycystic renal disease were associated in 32 cases collected from the literature. This incidence suggests that more than coincidence is involved in this relationship. The presence of these two lesions in three additional patients is reported. In the first patient, aged 33, death was due primarily to slow bleeding from an intracranial aneurysm; the presence of polycystic kidneys was revealed by necropsy. In the second patient, aged 62, death was due to uremia from failure of the polycystic kidneys, and the presence of a symptomless intracranial aneurysm was disclosed by careful examination of the cerebral arteries. In the third patient, aged 52, illness and death were caused by a widespread bronchogenic carcinoma. Two minute unruptured intracranial aneurysms and polycystic kidneys were accidental postmortem discoveries. Other anomalies such as coarctation of the aorta, biliary cysts, and cysts of the pancreas that have been observed in association with either intracranial aneurysms or congenital polycystic kidneys are discussed. Polycystic disease of the kidneys may represent one phase of a disseminated congenital disorder somewhat analogous to tuberous sclerosis, neurofibromatosis of Von Recklinghausen, or Lindau-Von Hippel disease.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

37:201-300 (May) 1953

*Study of Pinta in Tepalcatepec Basin, Michoacan, Mexico: I. Field Identification of Disease. W. F. Edmundson, A. L. Rico and S. Olansky.—p. 201.
*Id.: II. Mass Survey Considerations. W. F. Edmundson, A. L. Rico and S. Olansky.—p. 207.
Id.: III. Survey Results and Interpretation. W. F. Edmundson, A. L. Rico and S. Olansky.—p. 213.
Id.: IV. Serologic Findings in Survey. W. F. Edmundson, A. L. Rico and S. Olansky.—p. 221.
Effect of Adrenocortical Hormones on Lightning Pains and Visceral Crises of Tabes Dorsalis, with Some Remarks on Pathogenesis of Tabes Dorsalis. J. E. Moore.—p. 226.
Important Details Concerning Argyll Robertson Pupil. C. D. Benton Jr. —p. 232.
Ambulatory Treatment of Cardiovascular Syphilis with Penicillin. J. Edeiken, H. Beerman, J. H. Stokes and E. Stannard.—p. 237.
Broad-Spectrum Antibiotic Therapy of Early Syphilis: Posttreatment Survey. H. M. Robinson and H. M. Robinson Jr.—p. 243.
Treatment of Early Syphilis with Terramycin: Report Based on Study of 10 Cases. S. Irgang and E. R. Alexander.—p. 247.
Intramuscular Chloromycetin (Chloramphenicol) in Treatment of Venereal Disease. S. Olansky, F. W. Harb, C. E. Wood and D. S. Rambo. —p. 253.
Treatment of Acute Gonorrhea in Male Patients with Aureomycin-Triple Sulfonamide Combination. L. T. Wright and W. I. Metzger.—p. 259.
Study of Neurath Inhibition Phenomenon in Serodiagnosis of Syphilis. V. H. Falcone, A. Harris, S. Olansky and others.—p. 264.
Serology, Frei Reaction, and Epidemiology of Lymphogranuloma Venereum. A. B. Greaves and S. R. Taggart.—p. 273.

Identification of Pinta in Mexico.—Most of the estimated 250,000 victims of pinta in Mexico live in the valley of the Balsas River; the Tepalcatepec River is its most important tributary. The Center of Epidemiological Studies is making a study of pinta in the Tepalcatepec Basin, taking into account family relationships, domiciliary conditions, nutritional status, employment, exposure to and acquisition of other endemic diseases, and other factors with the hope of learning more of the nature of the disease, its transmission, and epidemiological control. Pinta is principally a disease of the skin that generally causes no disability or serious physical handicap. The victims of the disease move freely only in the geographic regions where the disease is endemic, because they are considered socially undesirable in pinta-free communities owing to the belief that the disease is contagious. Pinta, therefore, takes on socioeconomic importance. The main effects of the disease are disturbances in the normal pigmentation of the skin, often of unsightly character. In this first of the four reports a study is reported on 121 of 256 inhabitants of Capirio, a village on the Tepalcatepec River. The study consisted of examination of the exposed surfaces of the body (head and neck, chest in whole or parts, arms, thighs, and legs), serologic tests for syphilis, and in some cases the Treponema pallidum immobilization test and dark-field examinations. In all patients with pinta the Treponema pallidum immobilization tests were positive. In two patients the standard serologic tests and the Treponema pallidum immobilization differed; no pinta was observed in either patient. To check the accuracy of self-diagnosis of pinta or of that made by an older member of the family, a comparison was made between the self-diagnosis and the diagnosis arrived at by the examining dermatologist. Four errors in self-diagnosis were found in 64 patients. With this degree of accuracy, the following incidence of pinta was found in the families of the Capirio community. Of the 54 families with 256 persons, there were 39 families in which living members had a history of pinta. In 12 families one-half or less of the members had the disease, and in 27 families more than one-half of the family were affected, all members being affected in 11 of these 27 families.

Pinta in Mexico: Mass Survey Considerations.—In this second of the four reports results of a clinical and serologic study of pinta are presented. Exposed surfaces of the skin were examined and serologic tests done for syphilis in 238 persons, of whom 52 were found to have pinta. Examination of the exposed surfaces of the body proved efficient for field identification of the disease. Clinical diagnoses made by this method were confirmed by serologic studies with very few exceptions. Serologic examinations are considered not necessary or practical as a case-finding device in mass surveys for pinta. There is no way of making the differential diagnosis serologically between syphilis and pinta. Since it is extremely unlikely that syphilis is not extant to some degree in these populations, the reactions found in the untreated group are probably syphilitic, biologic false-positive reactions, or results of treatment in persons who denied it but nevertheless had been adequately treated for pinta. In the towns studied, medical care was given by practical nurses, who treated pinta patients with penicillin and/or arsenicals under medical supervision. In the two communities in which many of the patients had been treated previously, pinta was found to be disappearing, as evidenced by the relatively few cases of the disease found among children. The control of pinta is believed possible by adequate treatment of clinical cases, vigilance for, and prompt treatment of newly infected patients appearing or arriving in the treated areas, and proper re-treatment of recurrent disease.

Am. J. Tropical Medicine & Hygiene, Baltimore

2:347-556 (May) 1953

SYMPOSIUM ON TOXOPLASMOSIS

Toxoplasmosis: Current Status and Unsolved Problems: Introductory Remarks. A. B. Sabin.—p. 360.
Biology of Toxoplasma. L. Jacobs.—. 365.
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Toxoplasma-Like Protozoa in Chorioretinitis in Adults. H. C. Wilder. —p. 417.
Clinical Manifestations and Laboratory Diagnosis of Toxoplasmosis. H. A. Feldman.—p. 420.
Present Status of Chemotherapy of Toxoplasmosis. D. E. Eyles.—p. 429.
Imported and Indigenous Malaria in the United States, 1952. R. F. Fritz and J. M. Andrews.—p. 445.
Duration of Activity of Western Equine Encephalitis Neutralizing Antibodies in Aedes Nigromaculis and Culex Tarsalis. R. P. Scrivani, W. C. Reeves and B. Brookman.—p. 457.
Yellow Fever in Bolivia, Its History and Epidemiology. G. Bevier, N. Torres-Muñoz and J. Doria-Medina.—p. 464.
Some Epidemiological Observations on Tularemia in California 1927-1951. S. A. Simons, I. M. Stevens and W. C. Reeves.—p. 483.
Filariasis in American Samoa: III. Studies on Chemotherapy Against Nonperiodic Form of Wuchereria Bancrofti. G. F. Otto, L. A. Jachowski Jr. and J. D. Wharton.—p. 495.
Paragonimiasis: Failure of Nilodin in Therapy and Report of One Case with Urinary Tract Involvement. P. P. Weinstein, L. J. Duman, G. S. Trelawny and J. C. Patterson.—p. 517.

Annals of Internal Medicine, Lancaster, Pa.

38:913-1114 (May) 1953

Use of ACTH and Cortisone in Treatment and in Differential Diagnosis of Malignant Exophthalmos: Preliminary Report. L. W. Kinsell, J. W. Partridge and N. Foreman.—p. 913.
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Serum Potassium Patterns in Anuria and Oliguria. J. Hopper Jr., B. P. O'Connell and H. R. Fluss.—p. 935.
*Long-Term Evaluation of Aureomycin in Treatment of Actinomycosis. L. V. McVay Jr. and D. H. Sprunt.—p. 955.
Developmental Bronchial Cysts. S. G. Baxter and J. F. Meakins.—p. 967.
*Pure Mitral Insufficiency of Rheumatic Origin in Adults. E. R. Movitt and B. Gerstl.—p. 981.
*Experiences in Diagnosis and Antibiotic Therapy of Amebiasis: An Analysis of 50 Cases. N. J. Weiser, E. Spiotta and P. Ekman.—p. 1002.
Testing for Antibiotic Sensitivity in General Hospital. A. J. Weill and L. Harris.—p. 1027.
Plasma Cell Myeloma. G. C. Meacham.—p. 1035.

Aureomycin in Actinomycosis.—Seven of 10 patients with actinomycosis observed at the John Gaston Hospital and the University of Tennessee College of Medicine were treated with aureomycin. Six patients had cervicofacial actinomycosis and one had hepatic actinomycosis and a hepatic abscess caused by Actinomyces bovis and Bacteroides funduliformis. Aureomycin in doses of 750 mg. administered orally every six hours for 10 days and thereafter in doses of 500 mg. every six hours for 18 days was effective in cervicofacial actinomycosis. In four patients with localized cervicofacial actinomycosis the follow-up periods were 36, 33, 32, and 25 months respectively; in three of these actinomycosis followed extraction of teeth. There were no recurrences of the disease in these patients. The patient with hepatic actinomycosis who had been critically ill was entirely asymptomatic 30 months after treatment with aureomycin; he was working regularly and had maintained his normal weight for more than two years. Results of serial hematological examinations remained normal. Prolonged treatment with aureomycin by the intravenous route may be required in this severe form of the disease. Observation for five years following treatment may be necessary to establish definitely the cure of systemic or visceral actinomycosis. The authors consider aureomycin an effective agent in the treatment of localized and disseminated actinomycosis. Aureomycin exerts a definite inhibitory effect on Actinomyces bovis in vitro.

Pure Mitral Insufficiency of Rheumatic Origin.—At necropsy after death from heart disease in 44 cases, 5 cases of pure and isolated incompetence of the mitral valve were found without deformity of any other valve, pericarditis, hypertension, coronary artery disease, syphilis, or any other but rheumatic cardiac involvement except for bacterial endocarditis in one patient. In four of the five patients death resulted from mitral regurgitation causing intractable fatal congestive heart failure. In none was there any clinical or pathological evidence of an active rheumatic process. Modern textbooks and the current literature create the impression that in adults fatalities from heart failure occur only rarely during pure mitral insufficiency. The evidence presented here shows that death from this cause may occur in adults, even in advanced middle life, more frequently than is currently believed. All four patients had a loud, harsh systolic murmur, heard over the entire precordium, with maximal intensity over the apex, and radiation to the axilla, lung base, and along the spine as far down as the sacrum. The authors believe that even in the absence of a history of rheumatic fever, a murmur of this type, with or without an accompanying thrill, in combination with left atrial and ventricular enlargement, constitutes in adults a sign pathognomonic of organic mitral regurgitation. Sclerosis of the pulmonary vascular system was not observed in the authors' patients with pure mitral insufficiency.

Diagnosis and Antibiotic Therapy of Amebiasis.—Diagnosis of amebiasis of the colon or liver was made in 50 patients by sigmoidoscopy, by examination of mucus obtained by mucosal swabs, or by examination of feces. Sigmoidoscopy, with immediate examination of mucus, is the most practical method of diagnosis. It is easier and more productive than frequently repeated examinations of purged stools. Single stool specimens, or repeated specimens not obtained by purging, resulted in a low rate of successful diagnosis. Negative results shown by sigmoidoscopy and examination of the mucosal aspirate are essential criteria of cure. The use of less rigid criteria has resulted in the overenthusiastic and contradictory reports as to the efficacy of antibiotic drugs. Of 40 patients with intestinal amebiasis 27 were treated with oxytetracycline (Terramycin) and 13 with aureomycin; amebas were still found in 17 cases after one course of oxytetracycline and in 13 after a second course. Specimens from 4 of these 13 patients became negative after a seven day course of oxytetracycline and emetine. Five of the 13 patients treated with aureomycin were therapeutic failures. The use of antibiotics for the intestinal form of the disease was not only disappointing in failure to obtain cure but also in the development of serious untoward effects on prolonged treatment. The results with antibiotics were no better than those previously reported with potentially less toxic drugs. Results with chloroquine and emetine in the hepatic form of the disease were variable. Reinfection from uncontrolled intestinal amebiasis may give a false picture of the efficacy of these drugs. Eight illustrative cases are described, placing emphasis on the unusual clinical pictures that may occur and on the need for awareness of the prevalence of amebiasis in both civilian and military medicine.

Arkansas Medical Society Journal, Fort Smith

49:213-232 (May) 1953

Solitary Pelvic Kidney: Report of Case and Review of Literature. R. A. Downs.—p. 213.
Group Psychotherapy. E. Parsons.—p. 219.

50:1-28 (June) 1953

Ectopic Pregnancy (Tubal Abortion) in Rudimentary Horn of Uterus, Associated with Renal Agenesis. J. J. Monfort.—p. 18.
A New Partnership. J. W. Smith.—p. 19.

Cancer, Philadelphia

6:427-640 (May) 1953

Testicular Tumors: Clinicopathological Study. F. J. Dixon and R. A. Moore.—p. 427.
Gonadoblastoma: Gonadal Tumor Related to Dysgerminoma (Seminoma) and Capable of Sex-Hormone Production. R. E. Scully.—p. 455.
Experimental Teratomas of Testis. R. L. Carleton, N. B. Friedman and E. J. Bomze.—p. 464.
Guilt Reactions in Patients with Cancer. R. D. Abrams and J. E. Finesinger.—p. 474.
Hormonal Therapy in Cancer of Breast: V. Effect of Methyltestosterone on Clinical Course and Hormonal Excretion. A. Segaloff, B. N. Horwitt, R. A. Carabasi and others.—p. 483.
Inflammatory Fibroid Polyps of Stomach. W. K. Bullock and E. T. Moran.—p. 488.
Phaeochromocytoma in Rat: Pathogenesis and Collateral Reactions and Its Relation to Comparable Tumours in Man. J. Gillman, C. Gilbert and I. Spence.—p. 494.
Neuroblastoma of Suprarenal Medullary Anlage with Metastasis to Brain. B. Halpert, C. Pollard Jr. and T. H. McGuire.—p. 512.
Technique of Radical Vulvectomy for Carcinoma of Vulva. G. H. Twombly.—p. 516.
*An Autopsy Study of Latent Prostatic Cancer. C. N. Edwards, I. Steinthorsson and D. Nicholson.—p. 531.
*Peripheral and Multiple Bronchial Adenomas. W. L. Felton II, A. A. Liebow and G. E. Lindskog.—p. 555.
Technique of Immediate Bone Grafting in Treatment of Benign and Malignant Tumors of Mandible and Review of 17 Consecutive Cases. J. J. Conley.—p. 568.
Primary Melanocarcinoma of Esophagus: Third Histologically Proved Case. W. K. Bullock, H. L. Thompson and G. Gregory.—p. 578.
Chondrosarcoma of Extraskeletal Soft Tissues. A. P. Stout and E. W. Verner.—p. 581.
*Remissions in Leukemia of Childhood Following Acute Infectious Disease: Staphylococcus and Streptococcus, Varicella, and Feline Pan-Leukopenia. H. R. Bierman, D. M. Crile, K. S. Dod and others.—p. 591.
Cellular Study of Lymph-Node Imprints. R. D. Moore and J. W. Reagan.—p. 606.
In Vivo Localization of Anti-Wagner-Osteogenic-Sarcoma Antibodies. D. Pressman and L. Korngold.—p. 619.
Delay in Diagnosis and Treatment of Physicians with Cancer. G. F. Robbins, M. C. Macdonald and G. T. Pack.—p. 624.

Autopsy Study of Latent Prostatic Cancer.—The authors studied two series of autopsies in patients 40 or more years of age. In one series, the incidence of latent prostatic cancer was 14.8% in 81 cases; in the other series, it was 16.6% in 173 cases. The morphology of the small latent cancers appeared similar to that of clinically manifest prostatic carcinoma, although there was less infiltration. Early carcinoma originated from the peripheral prostatic tubules in 87.5% of cases; it was not infrequently multicentric. A statistically significant relationship could be demonstrated between prostatic carcinoma and benign hyperplasia; the nature of this association remains obscure. No statistically significant relationship could be demonstrated between prostatic carcinoma and prostatitis, prostatic calculi, or primary malignant disease in other body regions.

Peripheral and Multiple Bronchial Adenomas.—Bronchial adenomas may be termed "carcinoid" or "cylindroid" according to their resemblance to such neoplasms in other organs without implying any definite histogenesis. Although some of these tumors are locally invasive and capable of metastasizing, their development differs sharply from that of the much more rapidly progressive, destructive, and disseminating bronchogenic carcinoma. Bronchial adenomas occur predominantly in the main stem or lobar bronchi. This report deals with four cases of peripheral bronchial adenoma. In two patients of this series the lesions were multiple, and the evidence indicated that metastasis had not occurred. One of these offered a unique opportunity to study the histogenesis of peripheral bronchial adenoma. Both of these patients underwent pulmonary resection, and in the other two the tumors were found at necropsy. Observations on these four cases demonstrate that tumors with the structure of bronchial adenoma can originate in small bronchi or bronchioles and possibly even in respiratory bronchioles; that such lesions may be multiple is exemplified in two. The absence of lymphatic or lymph node involvement, together with other evidence such as the diversity in structure of adenomas of different sizes, suggests that these tumors were multicentric in origin rather than the result of intrapulmonary metastasis. In such a peripheral position there is evidence, based on the study of serial sections from one lesion, that bronchial adenomas can arise from the epithelial lining. This does not deny their possible origin from mucous glands or their ducts when they arise in their usual position within proximal bronchi. These smallest lesions are not encapsulated, and their component cells tend to have scanty cytoplasm and an acinar arrangement with a tendency to line preexisting respiratory passages. In one patient it was possible to trace numerous transitional forms from such lesions to larger tumors of the usual structure. More data are needed concerning the age incidence of these peripheral adenomas that, in the experience of these authors, appear to occur in an older age group than the more central lesions.

Remissions in Leukemia After Infections.—Sporadically during the last 75 years there have been reports suggesting that severe infections may sometimes favorably modify the course of far-advanced neoplastic disease. More recently, attention has again been directed to the association of acute infections with clinical remissions of leukemia in children. Bierman and associates present case histories of 11 children in whom infections developed in the course of lymphatic leukemia. Marked clinical and hematological remission of the leukemia was seen in two children with hemolytic Staphylococcus septicemia, in one child with varicella, and in one child who was infected with the feline panleukopenia virus. Similar but less complete effects were observed in six other children. The sequence of events in these remissions is as follows: A child with acute lymphatic leukemia, with a high or a low leukocyte count and with or without a marked granulopenia, contracts an infection that is followed by fever, drop in the peripheral leukocyte count, and occasionally by a hypoplastic phase in the bone marrow. If the patient survives this phase, the hemogram returns toward normal and a temporary clinical remission may occur. In all cases the leukemic process returned, and no evidence is available from the present data that such remissions were associated with a significant prolongation of life. The authors feel that the rapid and almost complete return toward normal hematological and clinical appearance in some children with fulminant leukemia following acute infections is a strong indication that some major features of leukemia are reversible.

Diabetes, New York

2:171-256 (May-June) 1953

Clinical Features of Diabetic Acidosis and Coma. E. P. McCullagh. p. 171.
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Pathology of Diabetes Mellitus. J. D. Hamilton.—p. 180.
Diabetes in Iceland. V. Albertsson.—p. 184.
Diabetes in Two Ontario Communities: Studies in Case Finding. A. J. Kenny and A. L. Chute.—p. 187.
Incidence of Peripheral Vascular Changes in Diabetes Mellitus: Survey of 264 Cases. O. Brandman and W. Redisch.—p. 194.
Neurogenic Bladder Dysfunction as Complication of Diabetes: Report of Seven Cases. M. Spring and J. Hymes.—p. 199.
Serum Cholesterol in Juvenile Diabetes: Serial Determinations in Cases of Recent Onset. M. S. Dine and R. L. Jackson.—p. 206.

Endocrinology, Springfield, Ill.

52:489-610 (May) 1953. **Partial Index**

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Correlation of Preparative History and Method of Assay of Corticotropin with Clinical Potency. R. E. Thompson and J. D. Fisher.—p. 496.
Experimental Exophthalmos in Rats Produced by Cortisone. K. Aterman and S. M. Greenberg.—p. 510.
Nitrogen Balance, Liver Protein Repletion and Body Composition of Cortisone Treated Rats. R. H. Silber and C. C. Porter.—p. 518.
Radioiodine Metabolism in Chick Embryo. S. H. Wollman and E. Zwilling.—p. 526.
Effect of Growth Hormone on Tibia Glycogen Content of Hypophysectomized Rat. S. Ellis, M. E. Simpson and H. M. Evans.—p. 554.
Enterohepatic Circulation of Thyroxine in Rat. F. N. Briggs, A. Taurog and I. L. Chaikoff.—p. 559.
Effects of Iodide, Perchlorate, Thiocyanate, and Nitrate Administration Upon Iodide Concentrating Mechanism of Rat Thyroid. J. B. Wyngaarden, J. B. Stanbury and B. Rapp.—p. 568.
Adrenal Cortex and Sulfur Metabolism. J. W. Goldzieher, W. B. Rawls and M. A. Goldzieher.—p. 575.
Comparison of Ovarian and Pituitary Hormones for Maintenance of Pregnancy in Pyridoxine-Deficient Rats. M. M. Nelson, W. R. Lyons and H. M. Evans.—p. 585.
Progesterone Content of Human Placental Blood. W. H. Pearlman and M. Thomas.—p. 590.
Detectable Amounts of ACTH in Blood Following Salicylate Administration. C. H. Eades Jr. and J. S. King Jr.—p. 594.

GP (J. Am. Acad. Gen. Practice), Kansas City, Mo.

7:1-194 (June) 1953

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Small Temperature Charts for Physician. J. Drabkin.—p. 40.
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Guide for Immunization Procedures. A. C. McGuinness.—p. 47.
Acute Renal Failure. J. P. Merrill.—p. 55.
Auscultation in Diagnosis of Intracranial Disease. C. W. Burklund.—p. 63.
Delayed ECG Changes in Acute Myocardial Infarction. M. Feldman Jr., H. F. Raskin and T. C. Wolff.—p. 65.
Hazards of Blood Transfusions. C. E. Rath.—p. 67.

Industrial Medicine and Surgery, Chicago

22:191-236 (May) 1953. **Partial Index**

Prostatism and Its Implications with Reference to Medical Programs in Industry. M. R. Wolf.—p. 196.
Occupational Dermatoses. H. Rattner.—p. 198.
*Problem of Noise in Industry: Urgent, Imminent, Fraught with Danger. C. R. Walmer.—p. 202.
Employee Health Audit by Questionnaire. R. A. Hicks and N. B. Walker.—p. 211.
Manganese Poisoning in Mines of Cuba: Preliminary Report. M. G. Avila and R. P. Ballina.—p. 220.

Noise in Industry.—Managers of factories are beginning to realize that compensation claims for occupational loss of hearing may become more numerous. In one state compensation claims for occupational loss of hearing amounting to more than 5 million dollars have been filed against one company alone. In Wisconsin some 40-odd cases originating in two drop forge plants were filed. It is estimated that there are from 25,000 to 100,000 potential cases in Wisconsin that are being held up pending judgment of the State Supreme Court in a test case in which the Industrial Commission held that wage loss is not necessary, because loss of hearing is a schedule injury in that state. A bill has been introduced in the Wisconsin legislature asking that hearing loss cases be put on a wage-loss basis. Under this bill, as introduced, compensation would not be payable for occupational hearing loss unless there was a wage loss, and the maximal benefits would be set at $3,500. The author calls attention to some of the complexities, such as how to distinguish between occupational and nonoccupational loss of hearing. A standard technique must be established for measurements of hearing impairment. Related problems must be studied, such as the effect of vibration upon hearing and the development of tests that might predict which persons are unusually susceptible to hearing impairment. Recognizing that unless there is close cooperation and coordination of research, much time and money will be dissipated in the study of the problem of noise in industry, representatives of a number of interested groups have asked the Industrial Hygiene Foundation to participate as the coordinating agency in a program designed to provide practical information that can be used for developing control measures and for establishing regulations that will be equitable and practical. The important objectives of such a study are to find and define basic criteria for the appraisal of the effects of noise on hearing; to establish a correlation between loss of hearing and exposures to noise intensity levels in the various frequency bands; to evolve control procedures to reduce noise to acceptable levels; and to develop evidence that may lead to establishment of equitable regulations for coping with the legal aspects of the problem.

Journal of Allergy, St. Louis

24:193-288 (May) 1953

*Disability Due to Inhalation of Grain Dust. V. L. Cohen and H. Osgood.—p. 193.

Studies in Reaginic and Histaminic Wheals: II. Effect of Locally Administered Antihistamine on Passive Transfer Reaction. B. B. Siegel, K. L. Bowman and M. Walzer.—p. 212.

Acute Asthmatic Episodes in Children Caused by Upper Respiratory Bacteria During Colds, With and Without Bacterial Sensitization. F. A. Stevens.—p. 221.

Influence of Adrenalectomy and Cortisone on Anaphylactic Heart Reaction in Rabbits. G. Mikulicich and Y. T. Oester.—p. 227.

**Allergy in Identical Twins. R. Bowen.—p. 236.*

Use of Cortisone in Postinfection Encephalitis: Report of Case. L. L. Henderson.—p. 245.

Free Amino Groups of Ambrosia Elatior Pollen Proteins. R. B. Pringle.—p. 251.

Absorption of Antigen from Mammary Ducts. S. F. Livingston and M. Harten.—p. 258.

Bristamin, a New Antihistaminic Drug. L. E. Seyler and S. W. Simon.—p. 261.

Education and Advancement in Allergy. J. W. Thomas.—p. 264.

Disability Due to Inhalation of Grain Dust.—Respiratory disability is reported in 11 workers from grain elevators and feed mills in the Buffalo, N. Y., area. Each worker had been referred to an allergist because of symptoms suggestive of asthma. There was progressive dyspnea at rest and on exertion, cough, and frequently "wheezing." Each of these men had worked in the environment of crude grain dust for 10 years or more before well-pronounced symptoms appeared. All attributed their symptoms to the inhaled dust. The onset of symptoms was gradual. The symptoms, especially the dyspnea, showed a progressive increase until they became disabling. Examination showed evidence of chronic bronchitis, recurrent bronchial obstruction, and clinically apparent emphysema in 8 of the 11 patients. Nine of the 11 were tested with extracts of crude grain dust. Five of the patients were considered sensitive to grain dust and four were not. Four of the 11 patients died while under observation, and necropsies were performed in 3 of these. Pathological findings consisted of pronounced pulmonary fibrosis and emphysema, with cor pulmonale in two. There was no evidence of silicosis or fungus disease. The authors believe that workers handling crude grain may become allergically sensitive to crude grain dust or to some of its allergenic components, and that this sensitivity can result in disabling respiratory disease when the exposure is continued over a long period of time. Allergic sensitivity to crude grain dust is not the only causative factor in the production of the grain handler's disease. Crude grain dust inhaled over a long period of time can induce disabling respiratory symptoms and pulmonary changes in the absence of allergic sensitivity. The authors suggest that experimental work on lower animals should be carried out to determine whether exposure over long periods to an atmosphere laden with grain dust can induce chronic pulmonary changes or allergic sensitivity or both.

Allergy in Identical Twins.—In only 7 of 59 pairs of monozygotic, identical twins studied by Bowen were allergies present in both twins. The youngest pair was 8 weeks old, and the oldest 56 years; most were between 6 and 15 years of age. In the seven pairs of twins in which both had allergies three pairs had juvenile eczema, and in two of these asthmatic symptoms occurred later. Two other pairs had severe pollinosis of the perennial and ragweed types. Two others had classical bronchial asthma. In some of the remaining 52 pairs some of the twins had bronchial asthma with coexisting nasal blockage, but in this group only one of each pair was affected to such a degree that medical help was sought. The fact that in only seven pairs was there true allergy of similar pattern in both twins contradicts the concept that allergic manifestations are the result of placental transference. Many of these children were as young as 2 months when they first experienced their symptoms, which poses an interesting problem for the proponents of maternal rejection as an etiological factor. Brain wave studies were made in three pairs of twins; findings tended to be similar irrespective of the presence or absence of active allergy. The results of this survey also challenge the concept that maternal dietary restrictions during pregnancy will make allergy less likely to appear in the newborn.

Journal of Applied Physiology, Washington, D. C.

5:647-724 (May) 1953

Glycolysis of Blood in Diabetic Acidosis. D. M. Kydd, A. J. Heinsen, P. M. Hald and J. P. Peters.—p. 647.

Influence of Tonicity of Body Fluids on Rate of Excretion of Electrolytes. J. H. Darragh, L. G. Welt, A. V. N. Goodyer and W. A. Abele.—p. 658.

Dynamic Effects of Low Oxygen Tension of Inspired Air on Alveolar Gas Tensions. R. W. Stacy and F. A. Hitchcock.—p. 665.

Adaptive Changes During Exposure to Cold. L. D. Carlson, H. L. Burns, T. H. Holmes and P. P. Webb.—p. 672.

Pulse Rate, Blood Pressure and Vision After Cold Hip Bath. A. H. Steinhaus and G. Wendhut.—p. 677.

Gas Diffusion Technique for Measurement of Renal Blood Flow with Special Reference to Intact, Anuric Subject. H. L. Conn Jr., W. Anderson and S. Arena.—p. 683.

Morphological Subdivision of Q-T Interval and Its Relation to Cardiac Rate. D. Gross.—p. 690.

Potential Field During ST Segment. L. H. Nahum, A. Mauro, H. Levine and D. G. Abrahams.—p. 693.

Instantaneous Equipotential Distribution on Thoracic Surface of Human Subjects with Cardiac Pathology. A. Mauro, L. H. Nahum and R. Sikand.—p. 698.

*Effect of Vagotomy on Gastric Evacuation of High-Fat Meals. W. R. Waddell and C. C. Wang.—p. 705.

In Vitro Assay of Cholecystokinin Concentrates. L. L. Gershbein, R. W. Denton and B. W. Hubbard Jr.—p. 712.

Artificial Respiration Adapted to Special Conditions. P. V. Karpovich and C. J. Hale.—p. 717.

Effect of Vagotomy on Gastric Evacuation of High-Fat Meals.—The presence of fat within the upper intestine has been shown to depress the secretory and motor activity of the stomach. The role of the vagus nerves and the part played by reflex mechanisms in controlling gastric evacuation after fatty meals have been studied in animals, and the conclusions reached were that reflexes mediated over the parasympathetic nerves did not influence the behavior of the stomach significantly. New evidence concerning these problems obtained by simple techniques on human subjects are presented. It was found that the introduction of a high-fat meal into the normal stomach or one with a gastroenterostomy is followed by prolonged delay in gastric emptying. This effect is abolished by partial gastrectomy or by vagotomy in the presence of a gastroenterostomy. This seems to indicate that gastric was 14.8% in 81 cases; in the other series, it was 16.6% in 173 cases. The morphology of the small latent cancers appeared similar to that of clinically manifest prostatic carcinoma, although there was less infiltration. Early carcinoma originated from the peripheral prostatic tubules in 87.5% of cases; it was not infrequently multicentric. A statistically significant relationship could be demonstrated between prostatic carcinoma and benign hyperplasia; the nature of this association remains obscure. No statistically significant relationship could be demonstrated between prostatic carcinoma and prostatitis, prostatic calculi, or primary malignant disease in other body regions.

Peripheral and Multiple Bronchial Adenomas.—Bronchial adenomas may be termed "carcinoid" or "cylindroid" according to their resemblance to such neoplasms in other organs without implying any definite histogenesis. Although some of these tumors are locally invasive and capable of metastasizing, their development differs sharply from that of the much more rapidly progressive, destructive, and disseminating bronchogenic carcinoma. Bronchial adenomas occur predominantly in the main stem or lobar bronchi. This report deals with four cases of peripheral bronchial adenoma. In two patients of this series the lesions were multiple, and the evidence indicated that metastasis had not occurred. One of these offered a unique opportunity to study the histogenesis of peripheral bronchial adenoma. Both of these patients underwent pulmonary resection, and in the other two the tumors were found at necropsy. Observations on these four cases demonstrate that tumors with the structure of bronchial adenoma can originate in small bronchi or bronchioles and possibly even in respiratory bronchioles; that such lesions may be multiple is exemplified in two. The absence of lymphatic or lymph node involvement, together with other evidence such as the diversity in structure of adenomas of different sizes, suggests that these tumors were multicentric in origin rather than the result of intrapulmonary metastasis. In such a peripheral position there is evidence, based on the study of serial sections from one lesion, that bronchial adenomas can arise from the epithelial lining. This does not deny their possible origin from mucous glands or their ducts when they arise in their usual position within proximal bronchi. These smallest lesions are not encapsulated, and their component cells tend to have scanty cytoplasm and an acinar arrangement with a tendency to line preexisting respiratory passages. In one patient it was possible to trace numerous transitional forms from such lesions to larger tumors of the usual structure. More data are needed concerning the age incidence of these peripheral adenomas that, in the experience of these authors, appear to occur in an older age group than the more central lesions.

Remissions in Leukemia After Infections.—Sporadically during the last 75 years there have been reports suggesting that severe infections may sometimes favorably modify the course of far-advanced neoplastic disease. More recently, attention has again been directed to the association of acute infections with clinical remissions of leukemia in children. Bierman and associates present case histories of 11 children in whom infections developed in the course of lymphatic leukemia. Marked clinical and hematological remission of the leukemia was seen in two children with hemolytic Staphylococcus septicemia, in one child with varicella, and in one child who was infected with the feline panleukopenia virus. Similar but less complete effects were observed in six other children. The sequence of events in these remissions is as follows: A child with acute lymphatic leukemia, with a high or a low leukocyte count and with or without a marked granulopenia, contracts an infection that is followed by fever, drop in the peripheral leukocyte count, and occasionally by a hypoplastic phase in the bone marrow. If the patient survives this phase, the hemogram returns toward normal and a temporary clinical remission may occur. In all cases the leukemic process returned, and no evidence is available from the present data that such remissions were associated with a significant prolongation of life. The authors feel that the rapid and almost complete return toward normal hematological and clinical appearance in some children with fulminant leukemia following acute infections is a strong indication that some major features of leukemia are reversible.

Diabetes, New York

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Clinical Features of Diabetic Acidosis and Coma. E. P. McCullagh. p. 171.
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Pathology of Diabetes Mellitus. J. D. Hamilton.—p. 180.
Diabetes in Iceland. V. Albertsson.—p. 184.
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Incidence of Peripheral Vascular Changes in Diabetes Mellitus: Survey of 264 Cases. O. Brandman and W. Redisch.—p. 194.
Neurogenic Bladder Dysfunction as Complication of Diabetes: Report of Seven Cases. M. Spring and J. Hymes.—p. 199.
Serum Cholesterol in Juvenile Diabetes: Serial Determinations in Cases of Recent Onset. M. S. Dine and R. L. Jackson.—p. 206.

Endocrinology, Springfield, Ill.

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Nitrogen Balance, Liver Protein Repletion and Body Composition of Cortisone Treated Rats. R. H. Silber and C. C. Porter.—p. 518.
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Enterohepatic Circulation of Thyroxine in Rat. F. N. Briggs, A. Taurog and I. L. Chaikoff.—p. 559.
Effects of Iodide, Perchlorate, Thiocyanate, and Nitrate Administration Upon Iodide Concentrating Mechanism of Rat Thyroid. J. B. Wyngaarden, J. B. Stanbury and B. Rapp.—p. 568.
Adrenal Cortex and Sulfur Metabolism. J. W. Goldzieher, W. B. Rawls and M. A. Goldzieher.—p. 575.
Comparison of Ovarian and Pituitary Hormones for Maintenance of Pregnancy in Pyridoxine-Deficient Rats. M. M. Nelson, W. R. Lyons and H. M. Evans.—p. 585.
Progesterone Content of Human Placental Blood. W. H. Pearlman and M. Thomas.—p. 590.
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GP (J. Am. Acad. Gen. Practice), Kansas City, Mo.

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Industrial Medicine and Surgery, Chicago

22:191-236 (May) 1953. **Partial Index**

Prostatism and Its Implications with Reference to Medical Programs in Industry. M. R. Wolf.—p. 196.
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*Problem of Noise in Industry: Urgent, Imminent, Fraught with Danger. C. R. Walmer.—p. 202.
Employee Health Audit by Questionnaire. R. A. Hicks and N. B. Walker.—p. 211.
Manganese Poisoning in Mines of Cuba: Preliminary Report. M. G. Avila and R. P. Ballina.—p. 220.

Noise in Industry.—Managers of factories are beginning to realize that compensation claims for occupational loss of hearing may become more numerous. In one state compensation claims for occupational loss of hearing amounting to more than 5 million dollars have been filed against one company alone. In Wisconsin some 40-odd cases originating in two drop forge plants were filed. It is estimated that there are from 25,000 to 100,000 potential cases in Wisconsin that are being held up pending judgment of the State Supreme Court in a test case in which the Industrial Commission held that wage loss is not necessary, because loss of hearing is a schedule injury in that state. A bill has been introduced in the Wisconsin legislature asking that hearing loss cases be put on a wage-loss basis. Under this bill, as introduced, compensation would not be payable for occupational hearing loss unless there was a wage loss, and the maximal benefits would be set at $3,500. The author calls attention to some of the complexities, such as how to distinguish between occupational and nonoccupational loss of hearing. A standard technique must be established for measurements of hearing impairment. Related problems must be studied, such as the effect of vibration upon hearing and the development of tests that might predict which persons are unusually susceptible to hearing impairment. Recognizing that unless there is close cooperation and coordination of research, much time and money will be dissipated in the study of the problem of noise in industry, representatives of a number of interested groups have asked the Industrial Hygiene Foundation to participate as the coordinating agency in a program designed to provide practical information that can be used for developing control measures and for establishing regulations that will be equitable and practical. The important objectives of such a study are to find and define basic criteria for the appraisal of the effects of noise on hearing; to establish a correlation between loss of hearing and exposures to noise intensity levels in the various frequency bands; to evolve control procedures to reduce noise to acceptable levels; and to develop evidence that may lead to establishment of equitable regulations for coping with the legal aspects of the problem.

Journal of Allergy, St. Louis

24:193-288 (May) 1953

*Disability Due to Inhalation of Grain Dust. V. L. Cohen and H. Osgood. —p. 193.
Studies in Reaginic and Histaminic Wheals: II. Effect of Locally Administered Antihistamine on Passive Transfer Reaction. B. B. Siegel, K. L. Bowman and M. Walzer.—p. 212.
Acute Asthmatic Episodes in Children Caused by Upper Respiratory Bacteria During Colds, With and Without Bacterial Sensitization. F. A. Stevens.—p. 221.
Influence of Adrenalectomy and Cortisone on Anaphylactic Heart Reaction in Rabbits. G. Mikulicich and Y. T. Oester.—p. 227.
*Allergy in Identical Twins. R. Bowen.—p. 236.
Use of Cortisone in Postinfection Encephalitis: Report of Case. L. L. Henderson.—p. 245.
Free Amino Groups of Ambrosia Elatior Pollen Proteins. R. B. Pringle. —p. 251.
Absorption of Antigen from Mammary Ducts. S. F. Livingston and M. Harten.—p. 258.
Bristamin, a New Antihistaminic Drug. L. E. Seyler and S. W. Simon. —p. 261.
Education and Advancement in Allergy. J. W. Thomas.—p. 264.

Disability Due to Inhalation of Grain Dust.—Respiratory disability is reported in 11 workers from grain elevators and feed mills in the Buffalo, N. Y., area. Each worker had been referred to an allergist because of symptoms suggestive of asthma. There was progressive dyspnea at rest and on exertion, cough, and frequently "wheezing." Each of these men had worked in the environment of crude grain dust for 10 years or more before well-pronounced symptoms appeared. All attributed their symptoms to the inhaled dust. The onset of symptoms was gradual. The symptoms, especially the dyspnea, showed a progressive increase until they became disabling. Examination showed evidence of chronic bronchitis, recurrent bronchial obstruction, and clinically apparent emphysema in 8 of the 11 patients. Nine of the 11 were tested with extracts of crude grain dust. Five of the patients were considered sensitive to grain dust and four were not. Four of the 11 patients died while under observation, and necropsies were performed in 3 of these. Pathological findings consisted of pronounced pulmonary fibrosis and emphysema, with cor pulmonale in two. There was no evidence of silicosis or fungus disease. The authors believe that workers handling crude grain may become allergically sensitive to crude grain dust or to some of its allergenic components, and that this sensitivity can result in disabling respiratory disease when the exposure is continued over a long period of time. Allergic sensitivity to crude grain dust is not the only causative factor in the production of the grain handler's disease. Crude grain dust inhaled over a long period of time can induce disabling respiratory symptoms and pulmonary changes in the absence of allergic sensitivity. The authors suggest that experimental work on lower animals should be carried out to determine whether exposure over long periods to an atmosphere laden with grain dust can induce chronic pulmonary changes or allergic sensitivity or both.

Allergy in Identical Twins.—In only 7 of 59 pairs of monozygotic, identical twins studied by Bowen were allergies present in both twins. The youngest pair was 8 weeks old, and the oldest 56 years; most were between 6 and 15 years of age. In the seven pairs of twins in which both had allergies three pairs had juvenile eczema, and in two of these asthmatic symptoms occurred later. Two other pairs had severe pollinosis of the perennial and ragweed types. Two others had classical bronchial asthma. In some of the remaining 52 pairs some of the twins had bronchial asthma with coexisting nasal blockage, but in this group only one of each pair was affected to such a degree that medical help was sought. The fact that in only seven pairs was there true allergy of similar pattern in both twins contradicts the concept that allergic manifestations are the result of placental transference. Many of these children were as young as 2 months when they first experienced their symptoms, which poses an interesting problem for the proponents of maternal rejection as an etiological factor. Brain wave studies were made in three pairs of twins; findings tended to be similar irrespective of the presence or absence of active allergy. The results of this survey also challenge the concept that maternal dietary restrictions during pregnancy will make allergy less likely to appear in the newborn.

Journal of Applied Physiology, Washington, D. C.

5:647-724 (May) 1953

Glycolysis of Blood in Diabetic Acidosis. D. M. Kydd, A. J. Heinsen, P. M. Hald and J. P. Peters.—p. 647.
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*Effect of Vagotomy on Gastric Evacuation of High-Fat Meals. W. R. Waddell and C. C. Wang.—p. 705.
In Vitro Assay of Cholecystokinin Concentrates. L. L. Gershbein, R. W. Denton and B. W. Hubbard Jr.—p. 712.
Artificial Respiration Adapted to Special Conditions. P. V. Karpovich and C. J. Hale.—p. 717.

Effect of Vagotomy on Gastric Evacuation of High-Fat Meals. —The presence of fat within the upper intestine has been shown to depress the secretory and motor activity of the stomach. The role of the vagus nerves and the part played by reflex mechanisms in controlling gastric evacuation after fatty meals have been studied in animals, and the conclusions reached were that reflexes mediated over the parasympathetic nerves did not influence the behavior of the stomach significantly. New evidence concerning these problems obtained by simple techniques on human subjects are presented. It was found that the introduction of a high-fat meal into the normal stomach or one with a gastroenterostomy is followed by prolonged delay in gastric emptying. This effect is abolished by partial gastrectomy or by vagotomy in the presence of a gastroenterostomy. This seems to indicate that gastric evacuation after fatty meals is largely controlled by nervous reflex mechanisms mediated via the vagus nerves; this is contrary to previous findings and incompatible with some presently accepted theories.

Journal of Bacteriology, Baltimore

65:485-618 (May) 1953. Partial Index

Genetic Studies on Development of Streptomycin Resistance in Pasteurella Pestis. E. D. Garber, K. Noble and N. Carouso.—p. 485.
Effect of Free Amino Acid Pool Levels on Induced Synthesis of Enzymes. H. O. Halvorson and S. Spiegelman.—p. 496.
Effect of Sodium Azide on Radiation Damage and Photoreactivation. H. Berger, F. L. Haas, O. Wyss and W. S. Stone.—p. 538.
Nitrogen Metabolism of Certain Strains of Mycobacterium Tuberculosis. F. Bernheim, W. E. DeTurk and H. Pope.—p. 544.
Metabolism of Brucellae: Role of Cellular Permeability. P. Gerhardt, D. R. MacGregor, A. G. Marr and others.—p. 581.
Tracer Studies of Formate Metabolism in Fungi. W. B. Jefferson and J. W. Foster.—p. 587.

Journal of Bone and Joint Surgery, Boston

35-A:285-538 (April) 1953. Partial Index

New Method for Determination of Torsion of Femur. K. Dunlap, A. R. Shands Jr., L. C. Hollister Jr. and others.—p. 289.
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Manipulation of the Spine. E. G. Ewer.—p. 347.
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Hip Fractures: Role of Muscle Contraction or Intrinsic Forces in Causation of Fractures of Femoral Neck. L. D. Smith.—p. 367.
Experiences with Muscle-Transplant Operation for Relief of Painful Arthritis of Hip. M. H. Meyers.—p. 384.
Horizontal Lateral Roentgenography of Hip in Children: Preliminary Report. H. Laage, J. C. Barnett, J. M. Brady and others.—p. 387.
*Chordoma of Lumbar Vertebra. H. W. Baker and B. L. Coley.—p. 403.
Cystic Angiomatosis of Skeletal System. J. E. Jacobs and P. Kimmelstiel.—p. 409.
Surgical Treatment of Epicondylitis. G. E. Spencer Jr. and C. H. Herndon.—p. 421.
Surgical Management of Friedreich's Ataxia. M. Makin.—p. 425.
The Möbius Syndrome. R. N. Richards.—p. 437.
*Multiple Lesions of Bone in Letterer-Siwe Disease: Report of Case with Culture of Paracolon Arizona Bacilli from Bone Lesions and Blood, Followed by Response to Therapy. R. H. Fisher.—p. 445.
Sarcoid Disease of Bone at Ankle Joint. S. L. Turek.—p. 465.

Chordoma of Lumbar Vertebra.—Chordoma is a slow-growing malignant tumor that arises from elements of the primitive notochord. Over 300 cases of chordoma have been reported. The lesion most commonly arises in the sacrococcygeal region. Cranial chordomas are next in frequency. These usually arise in the sphenoid or the spheno-occipital region. Chordomas arising in the vertebral region are the least common, comprising less than 15% of the known cases. The vertebral lesions occur oftenest in the lumbar region. Observations on a new case of vertebral chordoma are presented. The patient, a 39-year-old man, was admitted to the bone tumor service in November, 1951, with the chief complaint of low back pain. The patient had sustained a back injury in an automobile accident in 1943, but after that he had no back symptoms until April, 1951, when he had an episode of dull continuous low back pain lasting 10 days and subsiding without treatment. In September, 1951, while he was bending, a severe pain developed in the midlumbar region, radiating into the right thigh and knee. The patient was admitted to his community hospital with a provisional diagnosis of herniated intervertebral disk. He was treated for 10 days by traction on the right lower extremity, followed by application of a plaster jacket. These measures relieved the back pain only slightly. Films of the lumbar portion of the spine revealed an irregular area of bone destruction involving the posterior two-thirds of the body of the third lumbar vertebra. An aspiration biopsy of this vertebra revealed only blood and calcified debris. On Nov. 14, 1951, the lumbar spine was explored surgically and a biopsy specimen obtained. At operation, a diffuse area of softening and bone destruction was encountered in the lamina of the third lumbar vertebra. The bone was replaced by a mass of soft, rather gelatinous material that was brick-red in color. On the basis of an immediately air-fixed smear of the specimen stained with hematoxylin and eosin a diagnosis of chordoma was made; the microscopic appearance was typical. Following operation, the patient was fitted with a spinal brace that allowed him to become ambulatory, and x-ray therapy was started. A tumor dose of 1,560 r was given in two weeks. The therapy was then continued on the million-volt machine. A total tumor dose of 3,940 r was delivered to the third lumbar vertebra in slightly less than one month. The patient was symptomatically improved within a month after completion of the radiation therapy. The patient has been followed regularly in the bone tumor clinic and has shown continued improvement. Roentgenographic examination of the spine in September, 1952, disclosed no activity of the disease.

Multiple Bone Lesions in Letterer-Siwe Disease.—Fisher reports a case of Letterer-Siwe disease that provided an opportunity to investigate the development and healing of the bone lesions and revealed what appears to be the causative organism. The patient presented roentgenographic evidence of multiple destructive and productive lesions of the long bones, skull, and ribs, associated with generalized lymphadenopathy, fever, rapid pulse, anemia, and slightly depressed leukocyte count. A progressive course brought the patient close to death in eight months. The patient, a 2-year-old boy, responded to antibiotic therapy. This is the fifth case of Letterer-Siwe disease in the past two years in which clinical cure was obtained by treatment with antibiotics. Over the course of a year, six surgical biopsies were done. The original biopsy specimen showed nonlipid histiocytosis compatible with Letterer-Siwe disease. The second specimen showed the development of a lipid histiocytosis. The blood and tissue cultures revealed paracolon bacilli of the Arizona group. The author feels that Letterer-Siwe disease should no longer be considered inevitably fatal. This case strongly supports the concept of an inflammatory basis for this group of diseases. The findings in serial biopsy specimens also support the concept that Letterer-Siwe disease and Hand-Schüller-Christian disease are the same disease in different histological phases. Multiple biopsies and blood cultures are indicated for identification of causative organisms in similar cases. Antibiotic treatment is indicated even in the absence of a bacterial culture. The antibiotics of choice are probably chloramphenicol and oxytetracycline (Terramycin). Penicillin seems to be the least effective antibiotic against organisms likely to cause the condition.

Journal of National Medical Association, New York

45:163-236 (May) 1953. Partial Index

*Pulmonary Air Cysts: Some Diagnostic, Physiologic and Therapeutic Considerations. K. A. Harden.—p. 167.
Influence of Dietary Supplements on Hemoglobin, Erythrocytes, and Outcome of Pregnancy in Anemic Women. C. H. Edwards, J. R. Mitchell, F. J. McEnge and others.—p. 180.
Perspective in ACTH and Cortisone Therapy. M. J. Mosely Jr.—p. 192.
"Managing Physician" Concept in Practice of Medicine. A. N. Koplin and H. C. Daniels.—p. 196.
Relation of Dietary Habits to Hemoglobin, Erythrocytes, and Minor Physical Ailments of College Students. F. R. Richardson and C. H. Edwards.—p. 201.
Psychomoter Epilepsy. E. L. Youngue.—p. 211.
Cancer of Female Genitalia: Comments on 10 Year Experience at Homer G. Phillips Hospital. W. L. Smiley.—p. 216.
Further Report on Use of Diethylstilbestrol in Treatment of Threatened Abortion. J. W. Ross.—p. 223.

Pulmonary Air Cysts.—Harden discusses air cysts on the basis of observations on 16 patients at Bellevue and 10 at Freedman's Hospital. The patients were from 18 to 69 years old, and all but 6 were men. The most frequent signs and symptoms were pulmonary emphysema, respiratory difficulty, cyanosis, wheezing, dyspnea, cough, chest pain, hemoptysis, repeated respiratory infections, and pneumonia. Four groups of cases are differentiated, on the basis of the bronchial communication and the functional state of the remaining lung. In the group 1 patients, in whom large air cysts communicate with the bronchial tree, the maximum breathing capacity was normal or slightly reduced. The patients of group 2 had large cysts with poor or intermittent bronchial communication but the remaining lung was apparently normal. The total lung volume was greatly restricted in all cases of group 2. The spirogram showed expiratory obstruction and air trapping. Irregularity of the respiratory movements was also observed. Patients of group 3a had air cysts with poor or intermittent bronchial communication associated with chronic diffuse emphysema in the remaining lung. The maximum breathing capacity was severely restricted but improved with bronchodilator drugs. Patients of group 3b also have low oxygen and high carbon dioxide tension in the alveolar air, which is reflected in the unsaturation of arterial blood that may result in cyanosis. Efforts should be made to prevent respiratory infections in patients with pulmonary air cysts, but, when respiratory infection develops, it should be combatted with antibiotics and chemotherapy. The use of oxygen may benefit these patients, particularly when heart failure or pneumonia develops, but hazards connected with the use of oxygen should be kept in mind. If the symptoms are severe enough to interfere with the patient's ability to work or are otherwise unduly incapacitating, surgical treatment is indicated for group 1 patients. In group 2 patients, surgery is the treatment of choice when the condition of the patient permits it. The use of surgery in group 3a depends largely on the condition of the patient, that is, whether he would survive surgery, and also whether he would still have respiratory insufficiency. The patients in group 3b have ventilatory and alveolar respiratory insufficiency. Even if they survive the operation, the symptoms may be intensified and hence surgical treatment is not advisable in the majority of these patients. Surgical treatment is indicated primarily when the other lung is normal and in some cases when the emphysematous changes in the other lung are not complicated by alveolar respiratory insufficiency.

Kentucky State Medical Assn. Journal, Bowling Green

51:229-276 (June) 1953

Observations and Experiences with Isonicotinic Acid Hydrazide (INH). J. F. W. Stewart.—p. 229.
Rationale of Good Control in Diabetes Mellitus. A. R. Colwell.—p. 238.
Encouraging and Discouraging Research with Therapeutic Radioisotopes. M. Brucer.—p. 243.
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Management of Carcinoma of Cervix. J. Love, I. H. Sonne Jr. and R. Greco.—p. 251.
Obligations of Individual Physician in the State Medical Profession in Civil Defense: Committee on Medical Emergency Service. G. Y. Graves, T. W. Gudex, L. Payton and others.—p. 254.

Maryland State Medical Journal, Baltimore

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Surgical Approach in Treatment of Pulmonary Tuberculosis. O. C. Brantigan.—p. 228.
Etiological Considerations and Prevention of Rheumatic Fever. C. M. MacLeod.—p. 236.
Diagnosis and Management of Common Gynecological Problems. W. J. Reich, M. W. Rubenstein and J. B. Reich.—p. 241.
Parenteral Nutrition. W. R. Waddell.—p. 244.

Medical Annals of District of Columbia, Washington

22:221-278 (May) 1953

*Use of Benzotropine Sulfonate in Treatment of Parkinsonism. D. O'Doherty and F. M. Forster.—p. 221.
Poisoning from Carbon Tetrachloride Used in Removing Adhesive Tape from Skin. B. L. Hardin Jr.—p. 224.
Unorthodox Working Concepts for Psychotherapy. D. E. Cameron. —p. 226.
Cesarean Hysterectomy: Review of 46 Cases. S. M. Dodek, J. M. Friedman, H. P. Treichler and S. G. DeCastro.—p. 235.
Pheochromocytoma and Hypertension. R. G. Taylor.—p. 240.

Benzotropine Sulfonate in Parkinsonism.—Since the atropine series has long been known to include the most efficacious antiparkinsonism drugs and since antihistaminic drugs offered some promise in therapy, an attempt was made to combine the two chemical groups. A preparation known by its experimental number MKO-2, or benzotropine sulfate, was used in 24 patients; in 10 the parkinsonism was due to arteriosclerosis and in 14 was postencephalitic. Tremor and rigidity were present in all 24 patients, but in 10 patients tremor predominated; in 7 patients tremor and rigidity were equally incapacitating. Oculogyric crises occurred in three patients. One patient was bedridden and six patients were ambulatory but could not engage in any useful activity; 14 patients were able to carry on minor activities, and 3 patients were able to continue their usual activities. Benzotropine sulfate was administered in tablets containing 0.5, 1.0, or 2.0 mg. The total dose per patient varied from 1.5 to 6.0 mg. per day. Six of the patients had received no antiparkinsonism therapy prior to the administration of benzotropine sulfate; 18 had previously received other medications. The patients were followed for from 3 to 12 months while receiving benzotropine sulfate. Although no patient could be classified as recovered while under treatment with benzotropine sulfate, 3 showed great improvement, 14 showed moderate to slight improvement, 9 showed moderate improvement, and 5 fair improvement. Seven failed to improve. In no patient was the parkinsonism made worse by benzotropine sulfate. The authors conclude that benzotropine sulfate is an effective agent in the treatment of parkinsonism, comparing favorably with previously tried medications and tending to be more effective in severer cases. There are fewer toxic effects with comparable doses than with other atropine drugs.

Military Surgeon, Washington, D. C.

112:315-394 (May) 1953. Partial Index

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Twelve Year Follow-Up Study of 1,056 U. S. Naval Flyers. A. Graybiel, J. M. Packard and J. S. Graettinger.—p. 328.
Hospital Ships in Korea. E. B. Coyl.—p. 342.

New England Journal of Medicine, Boston

248:837-874 (May 14) 1953

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*Effect of Cortisone Therapy on Incidence of Rheumatic Heart Disease. A. L. Johnson and C. Ferencz.—p. 845.
*Use of Absolute Eosinophil Count in Diagnosis of Neoplasms: Preliminary Report. R. C. Murray.—p. 848.
Spatial Vectorcardiography: Review and Critique. L. Wolff, J. L. Richman and A. M. Soffe.—p. 851.

Effect of Cortisone Therapy on Incidence of Rheumatic Heart Disease.—An attempt was made to assess the effect of cortisone in rheumatic heart disease by comparing a group of 100 patients treated with cortisone and a group of 80 patients cared for under similar circumstances before cortisone was utilized. All of the children had active rheumatic fever, fulfilling the diagnostic criteria of Jones. Cortisone was given intramuscularly to 56 patients, the usual regimen being 200 mg. for two days and 100 to 150 mg. daily thereafter for 21 days. Ten patients received the hormone for 31 to 50 days. Cortisone was given orally to 32 patients in doses of 200 mg. for two days and 100 to 150 mg. daily for 28 days and to 6 patients for 40 to 84 days. Six patients received corticotropin intramuscularly in daily doses of from 40 to 60 mg. for 7 to 40 days. There was no significant difference in the incidence of heart disease in the group that received cortisone and the group that did not. During cortisone therapy the appearance of well-being and marked clinical improvement in some children with acute carditis is so striking that the similarity of the incidence of heart disease is surprising. The possibility that the mortality of acute rheumatic fever will be reduced by cortisone remains to be assessed.

Absolute Eosinophil Count in Diagnosis of Neoplasms.—Patients with pulmonary lesions and white blood cell counts of over 10,000 were selected for this study. Later only those with white blood cell counts of over 15,000 were studied. A total of 25 patients were investigated, and in addition 122 cases of carcinoma of the lung were reviewed to determine the incidence of leukocytosis. Of the 25 patients studied, 18 had a pulmonary neoplasm, 6 had lung abscess, and 1 had a lung cyst. Five of the 18 patients with carcinoma of the lung had roentgenologic pictures resembling lung abscess.

These five patients with necrotic tumors were found to have white blood cell counts above 30,000 and eosinophil counts above 500. These findings were compared with similar observations in six cases of lung abscess in which there was no eosinophilia associated with the leukocytosis. Records of 122 patients with carcinoma of the lung revealed that 3.3% had white blood cell counts over 30,000. In cases in which differentiation of a malignant from an infectious process is difficult, the eosinophil count may be a valuable test. This investigation suggests that the toxic effects of a necrotic neoplasm produce a leukocytosis involving all of the white blood cells. The absolute eosinophil count could be used in the differentiation of carcinoma from infection in these cases.

New York State Journal of Medicine, New York

53:1145-1272 (May 15) 1953

Resection Angulation Operation: Preliminary Report of Results. H. Milch. —p. 1201.
New Concepts of Therapy for Hemoglobin Regeneration. J. Pomeranze and M. Fastenberg.—p. 1206.
Organization of Cardiovascular Surgical Program: Preliminary Observations on Surgical Treatment of Patients with Mitral Stenosis. Montefiore Cardiovascular Conference. E. S. Hurwitt, Chairman.—p. 1209.
*Successful Irradiation Treatment of Malignancy Coexisting with Pregnancy. I. I. Kaplan.—p. 1215.
Sigmoidorectal Intussusception. E. Granet.—p. 1219.
*Clinical Experiences with Hexamethonium Chloride in Hypertension. I. Hirshleifer, G. Schwartz, S. I. Fishman and A. M. Fankhauser. —p. 1223.
Rehabilitation of Patient with Hemiplegia. D. A. Covalt.—p. 1225.

Irradiation Treatment of Malignant Disease in Pregnancy.—Two pregnant women with Hodgkin's disease and three pregnant women with cancer of the breast, lymphosarcoma and leukemia, respectively, were given x-ray irradiation treatment. With the exception of the women with leukemia, the patients were delivered of normal babies. The spleen area in the leukemic patient was irradiated, suggesting the advisability of terminating the pregnancy. Twin fetuses removed by hysterotomy showed no ill effects of irradiation. The patient died shortly after the operation. The patient with cancer of the breast had an apparent arrest of the malignant process for a time after the delivery. Her condition gradually deteriorated and she died. The patient with lymphosarcoma, whose lesions remained quiescent during pregnancy, manifested symptoms with enlargement of the lymph nodes in the neck after the delivery of her baby. X-ray treatment was repeated and she improved again. The two women with Hodgkin's disease are in good condition, and the children are normal and healthy. A sixth patient, a 42-year-old pregnant woman with cancer of the tongue, was given treatment with the 5 gm. radium pack through the right mandibular, right submental, and left mandibular areas. A total of 37,500 mg.·hours was given to each area. There was a fair response to treatment, and the patient was delivered of a normal full-term infant. Two months after the delivery and after repeated radium pack treatment, there was localized and general improvement. The procedure to follow in a woman with a malignant lesion who is also pregnant depends on the extent and character of the malignant lesion and the stage of the pregnancy. Irradiation over the unborn fetus at an early state necessitates immediate therapeutic abortion. Irradiation to other parts of the body does not necessarily affect the well-being of the fetus. Because of the known stimulative effect of pregnancy on malignant tissues, women who have a malignant condition should not become pregnant and should be sterilized to prevent pregnancy. Irradiation of a pregnant uterus should be avoided. When this precaution is followed, children born of irradiated mothers are normal in every way.

Hexamethonium Chloride in Hypertension.—Hexamethonium chloride in doses of 1 to 4 gm. daily was given orally for from 2 days to 10 weeks to 15 patients with moderate to severe hypertension. The dose of the drug and the duration of treatment in each patient were determined by the degree of hypertension, the response to therapy, and the toxic reactions observed. Two of the 15 patients obtained excellent results, 1 good result, and 3 fair results, while 9 were therapeutic failures. Administration of the drug was discontinued in 12 of the 15 patients because of severe side-effects, such as blurred vision, vertigo, impotence, difficulty in urination, and constipation. Increased headache, vomiting, abdominal pain, perianal inflammation, dermatitis, and tinnitus were also noted. Two patients developed paralytic ileus, one of them after receiving 1 gm. of the drug for only two days. The toxic reactions of hexamethonium chloride overshadowed its beneficial effects. The magnitude and severity of the toxic reactions were unrelated to the dosage of the drug, there being pronounced variation in tolerance from patient to patient. Caution should be exercised in its use, and hospitalization is advisable.

North Carolina Medical Journal, Winston-Salem

14:177-220 (May) 1953

Challenges Facing Medical Profesion Today. J. S. Brewer.—p. 177.
School Psychological Clinics: II. New Developments and Results. J. R. Grassi.—p. 184.
Treatment of Metacarpal Fractures. E. J. Wells.—p. 195.
Malignancy of Female Urethra: Report of Eight Cases. J. P. Glenn. —p. 201.
Subcutaneous Beryllium Granuloma: Report of Case. W. R. Floyd and J. O. Williams.—p. 204.
Trigeminal Neuralgia: Conservative Management with Massive Vitamin B_{12} Therapy. E. Alexander Jr. and C. H. Davis Jr.—p. 206.

Pennsylvania Medical Journal, Harrisburg

56:321-416 (May) 1953

Diabetic Coma. E. P. Joslin.—p. 353.
Typhoid Fever in Brother and Sister Simultaneously. O. E. Turner. —p. 360.
Cerebrovascular Disorders. B. J. Alpers.—p. 365.

56:417-512 (June) 1953

Management of Allergic Child. L. H. Criep.—p. 433.
Hypotension During Anesthesia. F. W. Sena.—p. 439.
Preventive Measures Against Toxemia of Pregnancy. T. L. Montgomery. —p. 442.
Treatment of Common Skin Diseases. H. Beerman.—p. 446.
Translumbar Aortography. W. Baurys.—p. 451.
Purpura. L. H. Beizer.—p. 455.

Postgraduate Medicine, Minneapolis

13:487-588 (June) 1953

Emotional Factors Involved in Evaluation of Coronary Artery Disease. D. D. Bond.—p. 487.
Vagotomy in Treatment of Peptic Ulcer. P. Banzet.—p. 491.
Surgical Treatment of Osteoarthritis of Hip. E. L. Compere.—p. 495.
Lesions of Adrenal Glands of Surgical Significance. J. T. Priestley and R. M. Salassa.—p. 500.
Splenectomy for Blood Dyscrasias. W. D. Holden.—p. 507.
Breast Clinic. R. M. Janes.—p. 513.
Treatment of Pulmonary Tuberculosis. W. N. Davey.—p. 519.
Radioactive Iodine in Medical and Surgical Management of Goiter. M. T. Friedell.—p. 523.
Present Status of Treatment of Gastric Malignancy. S. F. Marshall. —p. 529.
Treatment of Burns by Exposure Method. C. P. Artz, E. Reiss, J. H. Davis and W. H. Amspacher.—p. 535.
*Simple Method for Detecting Salt Depletion Syndrome During Cardiac Therapy. J. J. Silverman.—p. 547.
Newer Drugs and Their Indications in Childhood. E. P. Crump.—p. 552.
Hard of Hearing Patient. H. P. House.—p. 563.
Aplastic Anemia. T. G. Schnabel.—p. 568.
Antiquity of Disease. F. Stenn.—p. 579.

Detecting Salt Depletion During Cardiac Therapy.—The low salt syndrome is a dangerous complication in the management of congestive circulatory failure, but it is not always correctly identified. Silverman describes a practical method for detecting this syndrome, which does not require complicated laboratory procedures. The method depends on observing the response of the urinary chlorides and the change in body weight following the administration of a test dose of a mercurial diuretic. Ordinarily, the diuresis obtained from mercurials results in a profuse excretion of chlorides and a loss of body weight. If, on the other hand, a depression of the urinary chloride is observed and at the same time there is a prompt gain or no loss of weight, the low salt syndrome should be suspected. At the start of the test the patient's weight is noted and a sample of urine is obtained. The diet remains unchanged, and the patient is urged to take fluids.

A test dose of 1 cc. of one of the standard mercurial diuretics is administered intramuscularly. All urine is collected for four or eight hours and measured and tested for chlorides. A kit containing a test tube, a dropper, a 10% solution of potassium chromate, and a 0.73% solution of silver nitrate is all the equipment needed. The test is performed by placing 10 drops of urine in a test tube and adding 1 drop of the potassium chromate solution. A yellow-orange color is produced. To this mixture the silver nitrate solution is added drop by drop—the number of drops being counted—until the color changes to a reddish brown. Each drop of silver nitrate solution required to produce this color change represents 150 mg. of chloride per liter. The average person will normally demonstrate over 3 gm. (that is, 20 drops of the silver nitrate solution is required). A patient with the salt depletion syndrome will have extremely low levels of chlorides in the urine, often as low as 150 mg. (1 drop). In managing cardiac patients with a low salt diet and mercurial diuretics, testing the urine daily for chlorides yields important clinical data and should be more widely practiced. In collaboration with another investigator the author described in another paper a rapid bedside method for estimation of the serum chlorides in patients with the salt depletion syndrome.

Radiology, Syracuse, N. Y.

60:641-796 (May) 1953

Roentgenographic Appearance of Metastases to Central Lymph Nodes of Superior Mesenteric Artery in Carcinoma of Right Colon. J. J. McCort.—p. 641.
X-Ray Appearance and Incidence of Calcified Nodules on Habenular Commissure. C. G. Smith.—p. 647.
•Accidental Visualization of Ventricles Months After Intracranial Injection of Thorotrast. S. A. Leader.—p. 651.
Aseptic Necrosis of Bone in Sickle-Cell Disease. J. E. Moseley and J. B. Manly.—p. 656.
Radiological Study of Temporomandibular Joints. H. P. Doub and F. A. Henny.—p. 666.
Routine Clinical Experiences Using Urokon Sodium 70% in Intravenous Urography. A. A. Porporis, O. C. Zink, H. M. Wilson and others.—p. 675.
Preliminary Report on Teridax, New Cholecystographic Medium. R. Shapiro.—p. 687.
Contrast Substances for Angiocardiography: Study of Side Effects. C. T. Dotter, M. S. Wetchler and I. Steinberg.—p. 691.
Examination of Small Intestine with Carboxymethylcellulose. I. E. Kirsh and M. A. Spellberg.—p. 701.
"Punch-Card" Sorting for Radiological Reports. O. A. Steinnon.—p. 708.
Roentgen Visualization of Rokitansky-Aschoff Sinuses as Additional Sign of Chronic Gallbladder Disease: Case Report. R. Sukman and P. B. Daron.—p. 714.
Preoperative Radiographic Diagnosis of Foreign Body Within Gallbladder. W. R. Scott.—p. 718.
Gas-Containing Perinephric Abscess. A. H. Levy and H. N. Schwinger.—p. 720.
Experiences with Rapid Irradiation Technic in Oral Carcinoma. S. Rubenfeld.—p. 724.
Studies on Dosimetry and Bactericidal Effects of Gamma Radiations from Cobalt^{60} Source. S. A. Goldblith, B. E. Proctor, S. Davison and others.—p. 732.

Accidental Visualization Months After Intracranial Injection of Thorotrast.—A case is described in which the lateral ventricles and the third ventricle were visualized about eight months after the injection of colloidal thoriumdioxide (Thorotrast) into a cerebral cavity not communicating with the ventricles. While the most likely explanation for the visualization is a deposit of the contrast medium, how this occurred is not evident. The cavity in the brain was distinctly lateral to the left lateral ventricle, as demonstrated by the pneumoencephalogram made nine days after the injection. At least at that time, there was no communication of the cavity with the ventricle. It appears possible, however, that an accidental penetration of the ventricle occurred when the serosanguinous fluid was aspirated from the region of the left temporal lobe. A possible explanation for the presence of the contrast medium in the ventricles after such a long period is that it had lost its colloidal properties from having been in a closed cavity (as indicated by the work of Freeman), and when it was then accidentally transferred to the ventricles it clung to the walls much more readily. It seems more plausible that it reached the ventricles directly rather than leaking out and eventually getting into the ventricles by way of the subarachnoid spaces.

One other possibility was considered initially before the history of instillation of the contrast medium into the cavity in the brain was obtained, namely, calcification of the walls of the lateral and third ventricles. It seems likely that calcium is present at the site of the intracerebral hematoma, with possibly some of the contrast medium at this site also.

Rocky Mountain Medical Journal, Denver

50:373-446 (May) 1953

Whither Goest Thou? J. T. Finlen.—p. 395.
Precancerous Dermatoses. E. P. Cawley and C. E. Wheeler.—p. 399.
Pelvic Tuberculosis. O. J. Rojo.—p. 402.
Coarctation of Aorta. T. P. Keyes.—p. 406.
Non-Osteogenic Fibroma of Bone. W. C. Huyler and F. H. Hartshorn.—p. 409.
Mental Health Program for Wyoming. D. W. Herrold.—p. 410.

Surgery, Gynecology and Obstetrics, Chicago

96:637-762 (June) 1953

Emergency Surgical Treatment of Perforated Gastric and Duodenal Ulcers. O. H. Beahrs, D. K. Duncan and L. A. Vadheim.—p. 637.
•Detection of Chromosomal Sex in Hermaphrodites from Skin Biopsy. K. L. Moore, M. A. Graham and M. L. Barr.—p. 641.
•Incidence of Cancer with Nipple Discharge and Risk of Cancer in Presence of Papillary Disease of Breast. A. R. Kilgore, R. Fleming and M. M. Ramos.—p. 649.
Carcinoid Tumors: Clinical and Pathologic Study of 27 Cases. R. G. Mrazek Jr., M. C. Godwin and J. Mohardt.—p. 661.
Demonstration of Antidiuretic Substance in Urine of Postoperative Patients. T. N. Cline, J. W. Cole and W. D. Holden.—p. 674.
Acute Obstruction of Colon: Analysis of 205 Cases. W. F. Becker.—p. 677.
•*Pancreatic Cysts: Principles of Treatment. H. Doubilet and J. H.* Mulholland.—p. 683.
Sarcomas of Breast. O. F. Grimes, E. B. Fenston and H. G. Bell.—p. 693.
Delayed Primary Closure of Korean War Wounds. D. Fisher.—p. 696.
Outlet Pelvimetry and Symphysis-Biparietal and Sacral-Biparietal Diameters. L. G. Roth.—p. 704.
Use of Radioactive Colloidal Gold in Treatment of Serous Effusions of Neoplastic Origin. J. P. Storaasli, F. J. Bonte, D. P. King and H. L. Friedell.—p. 707.
Refrigeration in Experimental Surgery of the Aorta. E. J. Beattie Jr., D. Adovasio, J. M. Keshishian and B. Blades.—p. 711.
Effect of Experimentally Produced Pancreatitis on Canine External Pancreatic Secretion. G. A. Hallenbeck, G. L. Jordan Jr. and A. H. Kelly.—p. 714.
Effect of Intrathoracic Vagal Stimulation on Electrocardiographic Tracing in Man. D. R. Morton, K. P. Klassen, J. J. Jacoby and G. M. Curtis.—p. 724.
Surgical Treatment of Arthritic Hip. F. E. Stinchfield.—p. 733.
•Preservation of Living Bone in Plasma. E. J. Tucker.—p. 739.

The Detection of Chromosomal Sex in Hermaphrodites.—In humans, females have an XX chromosome combination while males have XY chromosomes as the sex chromosomes. Moore and associates point out that, according to the Klebs classification, there are true hermaphrodites and pseudohermaphrodites. The criterion of true hermaphroditism is the presence of ovarian and testicular tissue, either as an ovotestis or as a separate ovary and testis. Such cases are rare, about 50 histologically proved cases of true hermaphroditism having been recorded in the literature. Pseudohermaphrodites are classified as "male" or "female" according to whether the gonads are testes or ovaries. As in true hermaphrodites, pseudohermaphrodites show great variation in the genital structure, body form, breast development, growth of hair, and psychosexual manifestations. Pseudohermaphroditism appears to be commoner than is usually thought, the incidence being, according to Young, 1 in 1,000 of the population. The secondary sex characteristics in pseudohermaphrodites often run counter to the type of gonad. The authors stress the desirability of a more reliable identification of hermaphrodites. They have found that the nature of the sex chromosomes (XX or XY) may be detected by examining the epidermal nuclei in a small biopsy specimen of skin. They describe preliminary investigations on animals (cats) that led to the detection of chromosomal sex in man from skin biopsy specimens. A study of skin specimens from 50 women and 50 men of normal sex development demonstrated a difference in nuclear structure, according to sex, in cells of the malpighian layer. Nuclei of female specimens contain a mass of sex chromatin, which is seldom seen in the nuclei of male specimens. The sex chromatin is believed to be derived from heterochromatic parts of the sex chromosomes. The XX chromosomes of the female produce a chromatin mass large enough to be identified, while the XY chromosomes of the male do not produce a chromatin mass large enough to be distinguished from the general particulate chromatin. This method of detecting the chromosomal sex has been used in two cases of hermaphroditism. One patient proved to be a chromosomal female and the other a chromosomal male. The extension of this study to other cases of intersexuality is urged in the hope of clarifying the complex problem of hermaphroditism. The potential importance of the skin biopsy technique lies in the possibility that it may prove to be a simple method of detecting the dominant sex in infancy in doubtful cases.

Relation of Nipple Discharge and Papillary Disease to Cancer.—Kilgore and associates discuss the relation of nipple discharge and cancer on the basis of their observations on 190 patients with nipple discharge and of reports in the literature. A secretory discharge that is either grossly milky or contains secretory elements microscopically is of little significance and requires no more than observation for change of character. A serous discharge without secretory elements will contain blood at some time in one-third or more of the cases. The significance of such a discharge is similar to that of one containing blood. When there is a bloody discharge without a palpable lump, the chance of cancer being present is about 1 in 20 to 1 in 25. For this reason alone the source of bleeding should be found and its nature determined. If cancer is not present, bleeding may arise from papillary disease. There is disagreement as to the relationship of papillary disease to cancer. The authors feel that papillary disease indicates a cancer risk greater than average. None of the methods of locating and removing a single lesion of papillary disease is uniformly successful. If such a lesion is found, the chance of leaving undiscovered lesions elsewhere in the breast is considerable. For these reasons the woman over 40 with a bloody discharge or papillary disease and younger women with multiple lesions should be subjected to mastectomy (extended to radical operation if cancer is discovered).

Treatment of Pancreatic Cysts.—The relation of pancreatitis to pancreatic cysts is well established. The concept that recurrent pancreatitis usually results from the retrojection of bile into the pancreatic duct has been supported by the experience of the authors of this report. This can occur only if the sphincter of Oddi is spastic and when the bile and pancreatic ducts join in a common ampulla above the papilla of Vater. The presence of this common passageway in the described cases of pancreatitis and the good results achieved by sphincterotomy support this concept. Patients with inflammatory cysts must have spasm of the sphincter of Oddi, which tends to perpetuate or increase the pancreatic cysts. Drainage of these cysts must continue for long periods, because the pancreatic intraductal pressure is higher than normal because of the sphincter spasm. For the same reason pancreatitis may recur even in the presence of a draining pancreatic fistula, as is illustrated in two of the cases described here, and in the literature. Drainage does not prevent recurrences of pancreatitis and formation of new cysts, as was observed in one of the reported cases. Sphincterotomy should not only be helpful in the treatment of pancreatic cyst but also, by removing the cause of pancreatitis, should prevent further attacks. Although cystogastrostomy and cystojejunostomy have given good results, it does not seem advisable to anastomose the gastrointestinal tract to a retroperitoneal space; the authors do not consider it necessary except in cysts of the head of the pancreas in which the wall, probably a dilated duct, is hard and rigid. Since acute pancreatitis with pathological changes can occur with few or no overt clinical symptoms, it is not surprising that pancreatic cysts are found without a history of gastrointestinal disease. Such cysts, unless they are of congenital origin or due to an adenomatous growth, must have been caused by pancreatitis. Traumatic injury of the pancreas may produce necrosis of pancreatic tissue and rupture of the ducts. Since the pathological process following such injury is similar to that following acute pancreatitis, any cyst that may result should be treated similarly. The authors arrive at the following conclusions: 1. Pseudocysts of the pancreas, of inflammatory origin, should be treated by drainage and by section of the sphincter of Oddi, since this will cure the cyst and prevent the recurrence of pancreatitis. 2. Persistent cutaneous pancreatic fistulas resulting from drainage of a pancreatic cyst should be treated by sphincterotomy. 3. Cysts of the head of the pancreas should be treated by cystojejunostomy and sphincterotomy.

Preservation of Living Bone in Plasma.—Tucker found that a bone of a dog could be kept in the serum of the host at a mean temperature of 5 C (40 F) for as long as 18 months and be transplanted into other dogs with success. Similar methods were used for human bone. The bone was obtained from fresh cadavers not longer than six hours post mortem or from amputated extremities. These bodies were free from apparent infection or malignant disease. The blood Wassermann reaction, blood group, and Rh factor were determined. The bone was removed with sterile technique and placed in a sterile container, which was then filled with human plasma; 3 gm. of sodium sulfathiazole and 1,000,000 units of soluble penicillin were added to each 1,000 cc. of plasma. The containers were kept at a mean temperature of 5 C (40 F). The plasma was cultured at intervals, but only one specimen was found contaminated with a fungus after 14 months of storage. Microscopic, chemical studies, and tissue cultures were made on bone preserved in this manner. It was found that the cellular elements of this bone remain intact for long periods. The osteocytes of the bone show histological evidence of viability for as long as 28 months. Chemical changes take place when bone is stored in homologous plasma that do not occur when bone is preserved in heterogenous plasma. This type of preserved bone has been used in 40 cases. In no instance was there a postoperative infection or nonunion of the graft. In one patient, who was operated on six weeks after grafting, the graft was firmly united to the bone. Roentgenologically these grafts are well united at six months. Large quantities of viable bone that possesses osteogenic properties can be preserved by this method.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

61:209-284 (May) 1953

*Intrathoracic Meningocele. J. M. Baker and G. M. Curtis.—p. 209.
Anemias of Intestinal Stagnation. D. H. Sprong Jr., W. F. Pollock and M. A. Mack.—p. 217.
Diagnostic Value of Percutaneous Retrograde Arteriography of Iliac Artery in Cases of Tubal Pregnancy. U. Borell, I. Fernstrom and A. Westman.—p. 223.
Plural Births in United States. J. B. Nichols.—p. 229.
Fatal Cerebral Abscess Caused by Pasteurella Multocida. B. Harris, L. Veazie and W. L. Lehman.—p. 237.
Hazards of External Version. C. C. Hall.—p. 239.
Problem of Prolapsed Umbilical Cords. D. R. Nelson and P. H. Arnot. —p. 262.
Prolonged Labor. C. L. Fearl.—p. 272.

Intrathoracic Meningocele.—Two cases of intrathoracic meningocele are described because of the extreme rarity of this lesion. One of these cases was diagnosed preoperatively, which is rarely done because the condition is commonly mistaken for a posterior mediastinal neurofibroma with an intraspinal hourglass extension. In both of the reported cases the meningocele was successfully removed with complete recovery. Including these two cases, a total of 15 proved intrathoracic meningoceles have been reported in the literature. Von Recklinghausen's disease or cutaneous neurofibromatosis was associated with this anomaly in 9 of the 15 cases, and there were associated spinal deformities in 13 of the 15 cases. Since 1948, a total of six meningoceles have been successfully removed without a death. The seventh patient operated on died of cardiac arrest. Previous to 1948, the mortality following surgical removal was 100%. The indications for the surgical removal of intrathoracic meningocele are progressive enlargement of the meningocele, compression of intrathoracic structures and progressive erosion of the associated spinal vertebrae.

FOREIGN

Acta Medica Scandinavica, Stockholm

145:155-236 (No. 3) 1953. Partial Index

Significance of Pulmonary Blood Volume in Regulation of Blood Circulation Under Normal and Pathological Conditions. T. Sjöstrand.—p. 155.
*Immunologic Agranulocytosis? (Case Report). K. B. Hansen.—p. 169.
Artificial Kidney: XXII. Dialytic Treatment in Four Selected Cases of Acute Glomerulonephritis; Contribution to Question of Need for Dialysis in Rational Renal Therapy. N. Alwall, A. Lunderquist and A. Tornberg.—p. 175.
Hypoprothrombinemia—Occurrence and Prognostic Significance in Congestive Heart Failure. C. J. Bjerkelund and E. Gleditsch.—p. 181.
Dihydrogenated Ergot Alkaloids (Hydergine) in Treatment of Essential Hypertension. P. Bechgaard and L. Paulsen.—p. 189.
Congenital Hemorrhagic Syndrome Due to Deficiency of Coagulation Factor Recently Isolated and Described Under Names of Factor 7, Covertine and S.P.C.A. (Hemorrhagiparous Congenital Hypoconvertinemia). J. L. Beaumont and J. Bernard.—p. 200.

Problem of Immunologic Agranulocytosis.—Severe agranulocytosis in the blood and bone marrow associated with a pronounced increase in the percentage of gamma globulins is reported in a 63-year-old woman. The cause could not be established with certainty, but drugs as the causative agents could be eliminated. Corticotropin in doses of 20 mg. was given every six hours together with salt-free diet and potassium, causing depression of gamma globulins well correlated to the clinical and the hematological cure. Some sodium retention necessitated discontinuation of corticotropin therapy for one day, resulting in a relapse with an increase in gamma globulins and a pronounced decrease in leukocytes. The author speculates that the "idiopathic" agranulocytosis in this patient represented a leukocytic "variant" of immunologic hemolytic anemia, and that the cause is in some abnormality of the antigen-antibody response of the body.

British Journal of Surgery, Bristol

40:409-520 (March) 1953. Partial Index

Angiomatous Conditions of Gastro-Intestinal Tract. J. A. Shepherd. —p. 409.
*Response of Prostatic Carcinoma to Oestrogen Treatment. J. D. Fergusson and L. M. Franks.—p. 422.
*Bilateral Carcinoma of Breast. A. J. M. Reese.—p. 428.
Lindau's Disease in a South African Family. A. V. Bird and R. A. Krynauw.—p. 433.
Acute Phlegmonous Caecitis. R. E. B. Tagart.—p. 437.
Arteriography: Simple Technique. I. MacKenzie and H. A. R. Hamilton. —p. 442.
Method of Angiocardiography. I. M. Hill.—p. 444.
Kidney Homotransplantation. W. J. Dempster.—p. 447.
Metastasizing Haemangiomata: Case of Malignant Haemangio-Endothelioma. D. Tibbs.—p. 465.
Chronic Jejunal Prolapse Following Gastro-Enterostomy. J. E. Richardson. —p. 471.
Intracapsular Fractures of Neck of the Femur: Review of 100 Cases Treated by Internal Fixation. M. L. Mason.—p. 482.
Carcinoma of Oesophagus with Histological Appearances Simulating a "Carcinosarcoma." R. Smith and N. F. C. Gowing.—p. 487.
Anomalous Peritoneal Encapsulation of Small Intestine: Report of Three Cases. P. H. T. Thorlakson, I. W. Monie and T. K. Thorlakson. —p. 490.
Retroperitoneal Sarcoma: With Report of Four Cases. J. W. P. Gummer. —p. 494.
Chronic Intussusception Due to Inversion of Meckel's Diverticulum Containing Chronic Peptic Ulcer, Heterotopic Tissues, and Lipoma. R. E. Gibbons and W. St. C. Symmers.—p. 500.
Plasma-Cell Mastitis. G. F. Cassie.—p. 505.
Internal Supravesical Hernia: Report of Case Presenting with Bladder Symptoms. D. R. Barnes and B. J. Dreyer—p. 508.

Estrogen Treatment of Prostatic Carcinoma.—Fergusson and Franks report studies on tissue obtained on two or more occasions from the same patient with prostatic cancer treated with estrogens (5 to 30 mg. of diethylstilbestrol or the equivalent daily) and followed for nine years. Tissue was obtained by repeated biopsies or by biopsy and subsequent postmortem examination. Biopsy material was removed by a suitable needle through the perineum, at periurethral resection, or at open operation. Occasionally it was possible to examine serial biopsy specimens from accessible metastatic lesions in lymph nodes or bone. In all 82 specimens from 33 patients were available for study. Paraffin sections stained with hematoxylin and eosin were examined by one of the authors, and in some cases sections were stained for elastic tissue (orcein), reticulin (Foot's method), or by a modification of Masson's trichrome method. It was found that clinical regression of primary prostatic carcinoma after estrogen therapy is associated with histological evidence of cell destruction in the prostate. In almost all cases the tumor cells, but not the normal tissue, eventually lose their sensitivity to the hormone. The reason for this is not known, but a relative loss due to inadequate dosage occurs in some cases. The resistant tumor cells have no specific histological characteristics but are often of the dark-cell type in solid trabeculae. Even in cases with a very marked histological response to estrogens there are always surviving tumor cells, so that it is unlikely that endocrine treatment alone can ever be expected to "cure" prostatic cancer. Grading is of little value in assessing the prognosis or response to treatment, as estrogen sensitivity of the tumor cells is independent of the degree of differentiation or anaplasia. The presence of metastases when the patient is first seen tends to reduce the survival period. Breast tissue changes associated with administration of estrogens is often associated with a good clinical response. The optimal dosage of estrogens may be higher than that generally used. The subjective response, the behavior of the primary growth and accessible metastases, and the development of breast swelling and other side-effects indicate that in many cases doses of from 5 to 10 mg. of diethylstilbestrol may be sufficient to produce an initial effect over a few days. In others, three to four weeks may elapse before any change is noted, and in some the condition appears entirely unresponsive. The use of other hormones, such as pituitary hormones, is being investigated in cases in which the prostatic tumor has become estrogen-resistant.

Bilateral Carcinoma of Breast.—Twenty of 504 patients with cancer of the breast who were treated at St. George's Hospital in London between 1938 and 1951 had bilateral growths, and in 15 of them there was clinical and histological evidence that both were distinct primary tumors. The remaining five were advanced cases in which the possibility of spread from one breast to the other could not be excluded. Despite the extreme rarity of multicentric cancer and the frequency with which bilateral tumors have been ascribed to metastasis, there is evidence that in the first 15 cases of the present series the second growth was a primary carcinoma, In seven of the cases the growths were morphologically very different, and in five other cases the second tumor was clearly seen arising from an intraductal carcinoma. In the remaining three cases, as in most of the others, there was clinical evidence that both tumors were primary. The author concludes that bilateral breast carcinoma is due oftener to two primary tumors than to dissemination of a single growth.

British Medical Journal, London

1:1123-1178 (May 23) 1953

Medicine and Social Policy. F. A. E. Crew.—p. 1123.
Treatment of Polycythaemia Rubra Vera. R. B. Scott.—p. 1128.
Observations on Prognosis in Hypertension. A. W. D. Leishman.—p. 1131.
*Pulmonary Emphysema Treated by Pneumoperitoneum. R. D. C. Brackenridge and A. T. Jones.—p. 1135.
Sensitivity Studies on Shigella Sonnei. G. B. Forbes.—p. 1139.
Contact Dermatitis Due to Aminoazotoluene. R. H. Meara and I. Martin-Scott.—p. 1142.
Aplastic Anaemia Occurring Eight Years after T.N.T. Poisoning. F. G. J. Hayhoe.—p. 1143.
Haemophilia with Respiratory Obstruction. A. C. Macdonald, J. G. Robson and H. Wapshaw.—p. 1144.
Case of Talc Granuloma Simulating Carcinoma. F. Baar.—p. 1146.
Ishihara Tables: Comparison of 9th and 10th Editions. R. A. Weale —p. 1148.

Emphysema Treated by Pneumoperitoneum.—The essential pathological feature in emphysema is loss of elasticity in the lungs, which are very large but not truly distended. Expiration, largely a passive process produced by recoil of the elastic tissues of the lung, is impaired. The patient is unable to ventilate the lungs, and the oxygen saturation of the arterial blood falls to 85%. The inspired air tends to be drawn into the dead space formed by dilated and avascular alveoli. Chest expansion is often less than 1 in., and the increase of carbon dioxide in the blood produces dyspnea, often accompanied by cough and bronchospasm. Myocardial failure may also occur. Nine patients with severe pulmonary emphysema were treated with pneumoperitoneum and encouraging symptomatic relief was obtained in six. The purpose of this treatment is to raise the intra-abdominal pressure sufficiently to cause elevation of the diaphragm during expiration without impeding its contraction during inspiration. The excursion of the diaphragm is increased, and pulmonary ventilation is improved. The amount of air required by each patient can soon be determined; in this series, 400 cc. were given initially and the volume was gradually increased until from 800 to 1,000 cc. could be given without discomfort. Thereafter refills were given at weekly or biweekly intervals. Minor degrees of ascites occurred, and in one case inguinal hernias were aggravated. A few patients complained of abdominal discomfort for the first 24 or 48 hours after a refill, usually because too much air had been given. Improvement was shown by the disappearance of dyspnea and an increase in the amount of exercise that could be taken. Two of the three patients who were not benefited had a history of congestive heart failure and the other had asthma. Bronchitis, to which emphysematous patients are particularly subject, temporarily nullifies the good effects of a pneumoperitoneum.

Canadian Medical Association Journal, Montreal

68:531-642 (June) 1953

Thyroid Disease in New Zealand. C. Hercus.—p. 531.
Human Botulism in Canada. C. E. Dolman.—p. 538.
New Approach to Infant Feeding. W. F. Gough.—p. 544.
Potency of Purified Extracts of Veratrum Viride Sold in Canada. M. G. Allmark and A. Lavallée.—p. 546.
Uterine Bleeding: Functional Ulcerative and Congestive. M. C. Watson, J. Harkins and W. Paul.—p. 548.
50 Cases of Resection for Pulmonary Tuberculosis. J. A. Gravel.—p. 552.
Carob Flour in Treatment of Diarrhoeal Conditions in Infants. B. Fortier, G. Lebel and A. Frechette.—p. 557.
ACTH in Treatment of Keratodermia Blenorrhagica. B. Shallard and B. Kanee.—p. 561.
Correlation of Eosinophil Count with Clinical Course During Cortisone and ACTH Therapy. J. R. Martin and C. J. Pattee.—p. 565.
Mysoline in Treatment of Epileptic and Non-Epileptic Psychiatric Patients. A. Bonkalo and R. G. S. Arthurs.—p. 570.
Classification of Varicose Veins with Plan of Treatment. A. F. Jones. —p. 575.
Psychiatric Services in General Hospitals in Canada. C. A. Roberts, A. F. Gough and W. A. Mennie.—p. 578.
Treatment of Ragweed Hay Fever. C. J. Malloy.—p. 583.
Management of Marie-Strumpell Spondylitis with Special Reference to Long-Term Cortisone Therapy. A. W. Bagnall, J. A. Traynor and H. W. McIntosh.—p. 587.

Die Medizinische, Stuttgart

No. 20:671-702 (May 16) 1953. **Partial Index**

Physician and Education. H. Spiess.—p. 671.
*Proteolysis in Gastric Anacidity. F. Bramstedt.—p. 675.
Possibilities and Limits of Segmental Therapy. H. Schoeler.—p. 678.
"Oscillographic Congestion Test," a New Method of Examination for Evaluation of Capacity of Vascular Reaction in the Extremities. S. Dortenmann.—p. 682.

Proteolysis in Gastric Anacidity.—In an attempt to explain the part played by gastric kathepsin in the satisfactory proteolysis frequently observed in patients with gastric anacidity, the patients were given 500 cc. of skimmed milk after the gastric juice had been aspirated by tube from the fasting stomach. After 15 to 20 minutes a moderate amount of chyme was removed, and its tryptophan, tyrosine, residual nitrogen, and total nitrogen contents were determined. Ten minutes after the administration of the usual alcohol or caffeine test potion, the peptic proteolysis at 1.8 pH and the katheptic proteolysis at 3.8 pH were determined with the aid of the nephelometric edestin method. The proteolytic activity of ferment preparations was ascertained by the biuret method determining photometrically the split peptide compounds according to the decreased extinction. Two types of patients with gastric anacidity could be distinguished; the first group consisted of patients whose gastric mucosa still functioned but with reduced secretion of pepsin and kathepsin, and group 2 of patients with long-standing anacidity and atrophic gastric mucosa in whom the production of gastric ferments had almost stopped. In patients of the second group considerable regurgitation of the duodenal juice as well as satisfactory proteolysis was usually observed. The katheptic component could not have been responsible for the proteolysis, since such secretion was absent. It is suggested that the regurgitated tryptic ferments are responsible for the satisfactory proteolysis; these ferments may be exclusively responsible in patients with atrophy of the mucosa, and combined with the katheptic ferments in patients with a reduced production of gastric ferments. Patients with gastric anacidity and disturbed proteolysis were given a therapeutic trial with 1 gm. of glutathione, resulting in further reduction of proteolysis almost to zero. This almost complete arrest of the proteolysis was considered to support the author's concept that in patients with gastric anacidity and atrophy of the gastric mucosa proteins are broken down by tryptic catalysis. Experiments with commercial pancreatic preparations whose activity was determined by the biuret method revealed a rapid increase of the proteolytic activity between pH values of 6 and 7, with results not much below the optimum in the neutral range. These findings suggest treatment with pancreatic ferments or trypsin preparations as the method of choice in patients with gastric anacidity and atrophy of the gastric mucosa.

Gazzetta Medica Italiana, Milan

112:97-124 (April) 1953. **Partial Index**

*Clinical Findings in Arteriosclerosis Treated with Extracts of Artery. L. Schiavetti and S. Lucà.—p. 97.
Considerations on Results of Streptomycin Combined with Chloramphenicol in Treatment of Some Diseases of Infancy. R. C. Pedrinazzi and G. Spinelli.—p. 102.
*Mephenesin (Tolseron) in Treatment of Hemiplegia. L. Rigoletti, G. Martini and G. Boaro.—p. 117.

Arterial Extract in Arteriosclerosis.—Telatuten, an organic preparation extracted from the wall of the arteries of young animals and containing the active substances of the three coats of the vessel, was used to treat 14 patients with arteriosclerosis. Six patients in whom the disease involved mainly the legs (claudicatio intermittens) received intravenously 1 cc. of the drug daily for 6 days or every other day for 15 days. There was a one week treatment-free period after the patient had received 6 cc. when the therapy was continued longer. Sometimes oral administration of four 0.5 gm. tablets of Telatuten daily followed for 10 to 20 days. The improvement of insomnia, headache, irritability, and mental confusion was pronounced in three patients and moderate in two, but the condition of one patient remained unchanged. There were no side-effects, and in a follow-up six months later the improvement was still present. Five patients with arteriosclerosis and arterial hypertension received the drug intravenously and intramuscularly (1 cc. daily) and then orally (four to six 0.5 gm. tablets daily). The systolic pressure and sometimes the diastolic pressure dropped in four patients, insomnia, headache, and memory disturbances disappeared in all five, and the electrocardiographic and ballistocardiographic findings were improved. The drug was given to three patients in whom arteriosclerosis was associated with angina pectoris. The patient in whom the angina was severest received the drug intramuscularly for six days, while glyceryl trinitrate had to be given concurrently. Then Telatuten was given intravenously in two 10 day courses. The anginal attacks became less frequent and less severe, administration of glyceryl trinitrate was no longer necessary, and the blood pressure dropped. The other two patients received Telatuten intravenously in three four-day courses, with a treatment-free interval of four days between each course. Their general condition was improved, and the precordial distress that usually followed the slightest exertion and preceded the anginal attacks was no longer present. The drug restored to normal the cholesterol values of patients with cholesteremia. Telatuten probably influences the arteriosclerotic picture by interfering with the cholesterol metabolism, which is one of the main pathogenetic factors of the disease.

Mephenesin in Hemiplegia.—Mephenesin (Tolseron) was used to treat four patients with spastic hemiplegia. Cerebral thrombosis had occurred in one of these patients 10 months earlier, and a cerebral hemorrhage in another 2 months earlier. The other two were hospitalized immediately after the attack, and the therapy was instituted 21 and 40 days later respectively. The initial dose of mephenesin was 1 gm. daily, but this was gradually increased every three to four days thereafter to the average effective daily dose of 3 gm. From 34 to 282 gm. of mephenesin were given to each patient over a period of from 22 to 88 days. No other drug was given concurrently. Passive mobilization of the paralyzed extremities, with psychological and physical reeducation for voluntary movements, was practiced. The patient who was treated earliest regained active mobility completely and two others improved satisfactorily. All three regained the voluntary movements of the muscles of the trunk and leg before those of the arm and hand. Results were limited in the patient to whom mephenesin was given many months after he had suffered the cerebral thrombosis. The good results obtained were still present in the patients two to eight months after discontinuation of the therapy. Mephenesin was also given to seven patients with flaccid hemiplegia, one of whom had had a thrombosis, one an embolism, and five a cerebral hemorrhage. The same daily doses of mephenesin were used as for the patients of the first group. A total dose of from 25 to 95 gm. of the drug was given over a period of from 18 to 40 days. Despite the complication of bronchopneumonia, one patient who received the drug 38 days after the attack regained 75% of the voluntary movements in 40 days; there was, however, contracture of some groups of muscles in the extremities. The paralysis regressed almost entirely in another patient in whom the therapy was instituted 30 days after the attack. Two of the patients, who were treated earlier, regained normal mobility in 20 and 25 days, respectively, although some muscle contractures appeared and were still present at the time of writing. All patients regained normal ambulation and good function of the arm. The good results were still present two to six months after the treatment was discontinued. The drug prevented the appearance of extensive muscle contractures and brought about in each patient as much functional restoration as could be expected considering the anatomic lesion present.

Lancet, London

1:1007-1056 (May 23) 1953

*Mitral Stenosis: Diagnosis and Treatment. A. Logan and R. Turner.—p. 1007.
Troublesome Tapeworms. R. Asher.—p. 1019.
Effect of A.C.T.H. and Cortisone on Vitamin-C Metabolism and on Weight and Composition of Liver: In Guineapigs and Other Species. L. J. Harris, M. N. Bland, R. E. Hughes and B. J. Constable.—p. 1021.
Mysoline in Treatment of Epilepsy. A. J. M. Butter.—p. 1024.
Perineal Testis. J. C. N. Wakeley.—p. 1025.
Positive-Pressure Hood and Split Front for Both Respirator. A. B. Christie and J. R. Esplen.—p. 1027.

1:1057-1108 (May 30) 1953

*Mitral Stenosis: Diagnosis and Treatment. A. Logan and R. Turner.—p. 1057.
Diabetes and Peripheral Arterial Disease: Clinical Study. R. Semple.—p. 1064.
Some Factors Affecting Uropepsinogen Excretion in Man. H. H. G. Eastcott, J. K. Fawcett and C. G. Rob.—p. 1068.
Treatment of Oxyuriasis with Diphenan. L. M. Dowsett and A. E. Brown.—p. 1070.
Observations on Three Cases of Acute Porphyria. J. E. Kench, F. R. Ferguson and G. S. Graveson.—p. 1072.
Peripheral Neuropathy Due to Isoniazid: Report of Two Cases. W. A. Jones and G. P. Jones.—p. 1073.
Nephrotoxic Effects of Drugs Used in Treatment of Petit Mal. J. G. Millichap and B. H. Kirman.—p. 1074.

Mitral Stenosis.—Of 200 patients subjected to thoracotomy for mitral valvular disease, 130 came from one medical unit. This paper is concerned with the first 100 of these 130, in whom valvulotomy was performed for mitral stenosis. Patients with mitral stenosis of all grades of severity were included, except those without symptoms and those with very large hearts and uncontrollable cardiac failure. In the absence of contraindications, surgery should be considered for every patient with mitral stenosis in whom symptoms are progressive. In distinguishing predominant stenosis from predominant incompetence, the qualities of the first heart sound and the opening snap are emphasized. Radiography is indispensable. Electrocardiography sometimes gives useful evidence. Cardiac catheterization may be valuable in difficult cases. Patients with the highest pulmonary arterial pressures tend to have a high pulmonary arteriolar resistance, advanced mitral stenosis, normal rhythm, right ventricular hypertrophy, recurrent hemoptysis, and breathless attacks but no pulmonary edema; they seldom have auricular fibrillation. A relatively low pulmonary arterial pressure may be due to severe myocardial damage. Auricular fibrillation, which existed in 40% of the patients, is a disadvantage but not a contraindication to operation; auricular fibrillation developed in 19% who had sinus rhythm before operation in the postoperative period. Sinus rhythm can be restored with quinidine. Pregnancy often aggravates mitral stenosis. Valvulotomy is sometimes an alternative to the termination of pregnancy; the results in three such cases are reported. The outstanding risk of the operation is embolism, but cardiotomy may permit evacuation of a clot from the left auricle and atrium without production of systemic embolism. Seven patients died as a result of the operation. The causes of death were embolism, ventricular fibrillation, transfusion reaction, cardiac arrest, probable hepatic failure, and probable intracardiac thrombosis. In 74 patients followed for more than three months, the results were good in 66, fair in 6, and poor in 2. In one of the patients with a poor result a second operation achieved better division of the commissure. In patients with intractable edema, ligation of the inferior vena cava may prove to be useful before valvulotomy is done. Valvulotomy is not curative, and changes in cusps, chordae, and cardiac muscle will persist.

Maandschrift voor Kindergeneeskunde, Leyden

21:109-144 (April) 1953. Partial Index

Extradural Hemorrhage in Child of Nine Months. H. W. Stenvers.—p. 109.
Hypocalcemia in the Newborn. C. Smeenk.—p. 122.
*Increased Lead Absorption Resulting from Pica in a Boy Aged 7, Combined with Gastric Achylia and Hypochromic Microcytic Anemia. C. J. van Wisselingh and C. de Kruijff.—p. 128.

Increased Lead Absorption Resulting from Pica.—A 7-year-old boy had severe hypochromic microcytic anemia, splenomegaly, and gastric achylia. For three years the boy had repeatedly eaten lead paint. Signs of malnutrition had existed for a long time. Despite the pica (eating of lead) the boy showed no symptoms of lead poisoning. In this connection, the authors stress the difference between increased lead absorption and lead poisoning. The latter is usually characterized by encephalopathy, neuritis, paralysis, and intestinal colics. None of these symptoms were present in the boy. His severe anemia might have been caused by the lead intake or by deficient nutrition. It is unlikely that the achlorhydria was the only cause of his hypochromic anemia. Possibly intestinal disturbances were partially responsible. Psychic factors may also have played a part, and these in turn may have caused anorexia, with the result of deficient food intake, so that a vicious circle was created. It is difficult to say which factor was primary. Achlorhydria combined with hyperchromic anemia occurs oftenest in women. Women with chlorosis frequently have pica.

Medical Journal of Australia, Sydney

1:573-608 (April 25) 1953

Murray Valley Encephalitis: Survey of Avian Sera, 1951-1952. S. G. Anderson.—p. 573.
Mortality in Australia from Typhus, Typhoid Fever and Infections of Bowel. H. O. Lancaster.—p. 576.
*Effects of Shoes on Foot Form: An Anatomical Experiment. F. W. Knowles.—p. 579.
Mental Symptoms in Poisoning with Atropine and Its Derivatives. I. A Listwan and N. G. Wheaiy.—p. 581.
Relationship Between Human Infection with Brucellosis and Heavily Infected Milk Supply. K. H. Clapp.—p. 583.
Coronary Artery Disease in Western Australia, 1937 to 1950. W. S. Davidson.—p. 584.

Effects of Shoes on Foot Form.—Knowles shows that the measurement of feet, training of shoe fitters, and use of x-ray equipment cannot compensate for the gross discrepancy between the triangular outline of the plantar aspect of the natural foot and the unrelated, pointed, tapering, or rounded outlines of modern shoes. The experiment described was based on the assumption that modern shoes distort the feet, and was designed to ascertain the reversibility of such distortion. Shoes of a suitable size were not made "to measure" or "to fit" in the conventional sense but rather to the shape and proportions that would fully accommodate natural feet. Special lasts had to be constructed, which were given a triangular plantar aspect. They were of suitable length and of average shape and width. Several pairs of shoes were made on these lasts and have been worn for three and a half years to the exclusion of all other shoes. X-ray photographs of the feet were taken on the day of the permanent change-over in August, 1948. By checking the external appearance of the feet against a photograph taken at the time of the change-over, it was noticed that no remarkable change occurred for many months. The wearer of these shoes was 37 years old, and rapid skeletal changes were therefore hardly to be expected. By November, 1950, however, some change was noted, and an x-ray picture taken then showed that the toes had become less cramped. The experiment was concluded with final x-ray films taken in April, 1952. The valgus tendency of the hallux of the right foot was corrected. The left hallux, though it had less valgus tendency originally, has not improved so much; the osteoarthritic changes in its metacarpophalangeal joint already shown in the earlier x-ray films are unaltered. Spread of the smaller toes has improved only to a slight extent. Excessive perspiration ceased immediately in the new shoes, the epidermophytosis eventually cleared spontaneously, and the onychocryptosis, though still present to a degree, ceased to be troublesome.

Medicina, Buenos Aires

13:73-138 (April) 1953. **Partial Index**

Action of Indole and Some Indole Derivatives on Muscular Contractility. A. O. M. Stoppani and J. A. Izquierdo.—p. 73.
*Eosinophils and Lymphocytes in Arterial Hypertension. A. C. Taquini, S. A. Plesch, T. A. Capris and B. N. Badano.—p. 91.
Effects of C 7337 (Regitine) on Patients with Arterial Hypertension. T. A. Capris and S. A. Plesch.—p. 109.
*Precocious Sexual Development in Infant Three Months Old Due to Tumor of Third Ventricle. L. F. Diez, J. J. Staffieri and J. E. Celoria. —p. 116.

Eosinophils and Lymphocytes in Arterial Hypertension.—The absolute amount and differential count of circulating eosinophils and lymphocytes were determined in 35 patients with essential hypertension, and the eosinophil response to epinephrine and corticotropin (ACTH) was observed. The epinephrine test was also carried out in 16 dogs, who either had experimental nephrogenic hypertension of more than six months' duration or were normal. The patients were considered in two different groups. The 19 patients of the first group had essential hypertension of either grade 3 or 4. All had hypertensive cardiopathy without cardiac insufficiency. The renal function was impaired in four patients. The 16 patients in the second group had essential hypertension of either grade 1 or grade 2 without cardiac or renal insufficiency. The results were as follows: The level of circulating eosinophils was low but within normal limits in all patients in both groups. The number of the circulating lymphocytes was also low but within normal limits. They were lower in the patients of the first group than in those of the second group. The circulating eosinophils decreased following the epinephrine test more than 50% in all of the patients in both groups. The response to corticotropin was normal in the three patients with hypertension of grade 3 or 4. Epinephrine eosinopenia was much more marked and of longer duration in dogs with nephrogenic hypertension than in the controls. The authors believe that in patients with essential hypertension the secretion of corticoids, the response of the hypophysis to the stimulation of epinephrine and corticotropin, and the response of the cortex to the hypophysial stimulation are normal. The acute eosinopenia observed in dogs with nephrogenic hypertension shows that in this experimental condition the adrenal glands undergo pathological changes that result in increasing the sensitivity of the hypophysioadrenal system to epinephrine.

Precocious Sexual Development Owing to Ventricular Tumor. The subject of this report was an infant, 3 months old, who had two attacks of convulsions within a month. The patient showed signs of increased intracranial pressure and marked muscular hypotonia. The head was enlarged, and the infant was unable to hold it in normal position when taken in the arms. The testicles were as large as those of a 3-year-old child. The coexistence of the neurological and endocrine syndromes and the isosexual type of precocious sexual development suggested a tumor in the third ventricle as cause of the syndrome. The diagnosis was confirmed by encephalography and ventriculography. The operation consisted in removing a small tumor from the wall of the third ventricle. The tumor on histological examination proved to be an astrocytoma. The neurological and endocrine symptoms regressed after the operation. The patient was well three years after the operation.

Minerva Medica, Turin

44:1137-1168 (May 2) 1953

Genetics of Microcythemia: Synthesis of Previous Studies and New Contributions. E. Silvestroni, I. Bianco and M. Siniscalco.—p. 1137.
Late Results of Surgical Interventions for Postoperative Peptic Ulcer: Clinical Contribution of 65 Cases. A. Ruffo and V. De Pace.—p. 1145.
Studies of Hemagglutinative Properties of Extracts of Fava Bean: Demonstration of Transportation of Agglutinative Principle From Erythrocyte to Erythrocyte. U. Carcassi.—p. 1152.
*Importance of Study of Blood Coagulation in Patients with Cardiac and Vascular Diseases. F. Weis.—p. 1153.

Blood Coagulation in Patients with Cardiovascular Diseases.—Blood coagulation was studied in patients with cardiovascular disease with the Waugh and Ruddick in vitro heparin tolerance test. There was hypercoagulability in four of five patients with venous or arterial thrombosis, and it was more pronounced in the three patients with venous thrombosis. Marked hypercoagulability was also revealed in one of three patients with myocardial infarction in whom the test was performed 15 days after the onset of the symptoms. Normal values were found in the other two, in whom the test was performed 19 and 32 days, respectively, after the symptoms had appeared. There was hypercoagulability in one patient with coronaritis associated with angina pectoris. The test was also performed in 18 patients with cardiac insufficiency who were receiving digitalis. The results indicated normal coagulability in six patients regardless of the type of insufficiency, hypocoagulability in six patients with right-sided cardiac insufficiency and one with left-sided insufficiency, and hypercoagulability in five patients. Hypercoagulability was attributed to chronic cor pulmonale in one patient and administration of a mercurial diuretic in another. In the other three the cause of the hypercoagulability was not clear, unless it could have been ascribed to a thrombotic process that had formed in some area that could not be explored clinically. The author performed the test on eight patients with diseases that do not affect blood coagulation (pneumonia, pulmonary abscess, and nephritis) who were receiving penicillin. The heparin tolerance curve indicated hypercoagulability in all of them, revealing the effect of the antibiotic on the blood coagulation. This test generally reveals hypercoagulability in patients with arteriosclerosis. The in vitro heparin tolerance test should always be made on patients with cardiac and vascular diseases before any anticoagulant therapy is instituted.

Presse Médicale, Paris

61:681-700 (May 13) 1953

*Importance of Recent Lesion Factor in Effects of Isoniazid Treatment of Pulmonary Tuberculosis. E. Bernard, B. Kreis and A. Lotte.—p. 681.
Syphilis and Pregnancy. L. Digonnet, L. Bigey and H. Payenneville. —p. 682.
*Treatment of Cerebral Stroke of Vascular Origin. P. Cossa.—p. 684.
Sodium Cyanide and Hypothalamo-Pituitary-Adrenal Axis. H. Van Cauwenberge, J. Closon, M. Vliers and J. Goblet.—p. 685.
*A New Antibiotic: Erythromycin. B. Mathieu de Fossey.—p. 687.

"Recent Lesion" Factor in Isoniazid Treatment of Pulmonary Tuberculosis.—The effect of isoniazid on pulmonary tuberculosis was studied in 414 adult patients, 215 of whom had had the disease for more than six months (group 1). The other 199 patients (group 2) had either had it for less than six months so far as could be determined, or had recurrences superimposed on former lesions. The importance of early treatment was shown by the differences between the results obtained in the two groups. Reduction of fever and a gain in weight are easily discernible, and in these respects the differences between the two groups were moderate. The temperature was reduced in approximately 10% more of the patients in group 2, and was restored to normal in from 15 to 25% more, while weight gains were recorded in approximately 15% more of the patients in group 2. Much greater differences were revealed when the results of bacteriological and x-ray studies were compared; thus negative cultures were obtained at the end of three months in 73% of the patients in group 2 and in only 35% of those in group 1. Significant improvement in the radiological picture was seen in two-thirds more of the patients in group 2 than of those in group 1. Prolongation of isoniazid treatment for more than three months often produces continued improvement and may result in cure; sometimes, however, the action of the antibiotic must be supplemented by pneumothorax or some other form of surgical treatment. The use of streptomycin or *p*-aminosalicylic acid in combination with isoniazid lessens the danger that drug resistance will develop as a result of prolonged treatment. New cases of pulmonary tuberculosis should be treated as emergencies; delay in instituting treatment may lead to a chronic illness resistant to therapy.

Cerebrovascular Stroke.—Treatment of cerebral stroke of vascular origin should be designed to prevent or reduce edema, which, apart from massive hemorrhage, is the principal cause of death in this condition. All patients should be treated with continuous intravenous infusion of isotonic sodium chloride solution with glucose, 500 cc. in 8 hours, to which 40 cc. of 1% procaine (Scurocaine) hydrochloride without epinephrine and 1 ampul of Phenergan (10-[2-dimethylamino-1-propyl] phenothiozine) have been added. The isotonic sodium chloride solution with glucose should be replaced by 250 cc. of hypertonic 30% sodium chloride solution with glucose for patients with renal disease, and diabetics should be given isotonic sodium chloride solution without glucose. A substance capable of correcting cellular fragility, as for instance 5 cc. of 2.5% soluble rutin, may also be added. This basic treatment should be supplemented by heparin and stellate infiltration if softening is unquestionably present, or thrombase if hemorrhage is known to have occurred. Powerful ganglion blocking agents may prove helpful in severe cases in which the condition progresses without remission; if no improvement occurs, surgical intervention may be tried. Surgical removal of intracerebral hematomas will be successful in two out of three young patients and in one out of three older ones. Careful nursing and specific etiological treatment, such as insulin for diabetic patients, must not be neglected.

Erythromycin.—Erythromycin is a nontoxic antibiotic that is very effective against many bacteria, especially gram-positive organisms such as the pneumococci, the staphylococci, and various hemolytic and nonhemolytic streptococci. The fact that erythromycin must be given orally, because it is not readily soluble in water, makes its administration convenient and easy. It is perfectly tolerated in therapeutic doses and no complications affecting the kidneys, ears, liver, or blood as a result of its use have yet been reported. Mild digestive disturbances sometimes occur, but then disappear when administration of the drug is suspended. Contact with gastric juice reduces the activity of erythromycin, which is strongly alkaline, and its absorption is delayed and reduced when there is food in the stomach. The average initial dose is 1.5 to 2 gm. every 24 hours, given in four doses at six hour intervals, as far removed from mealtimes as possible. Smaller doses may later be used for maintenance. Erythromycin has been used effectively in diseases of the lungs, endocarditis caused by Streptococcus viridans, benign lymphogranulomatosis, and various other infections. It occupies a place between the broad spectrum antibiotics, such as aureomycin and oxytetracycline (Terramycin), and penicillin, and is especially valuable as a substitute for penicillin in cases of penicillin resistance.

Schweizerische medizinische Wochenschrift, Basel

83:419-438 (May 2) 1953. **Partial Index**

Hemodynamic Conditions During Cerebral Hemorrhage. R. Friede.—p. 424.

Colorimetric Determination of Amino Aciduria. I. Antener.—p. 425.

Favorable Results Obtained with Hydralazine Hydrochloride (Apresoline) in Arterial Circulatory Disturbances. A. Schmid.—p. 429.

*The Treatment of Roentgen Intoxication with Dihydroergotamine. K. Werner.—p. 431.

Dihydroergotamine in Treatment of Intoxication Resulting from Irradiation.—Roentgen intoxication is particularly severe when the sympathetic nerve is irradiated. It results from the action of roentgen rays on the neuroglandular system, from the resulting changes in the vegetative processes, and from tissue changes that in turn affect the sympathetic system. Werner found the various suggested remedies inadequate, including vitamins, circulatory remedies, belladonna, and liver preparations. He warns against the use of vitamin B_{12}, because its growth-promoting character may prove deleterious in tumor patients. In his search for a more effective remedy for roentgen intoxication, he decided to try dihydroergotamine, which was available in a drop solution for oral administration and in ampuls for injection. He usually prescribed 10 or 20 drops three times daily. Symptoms of roentgen intoxication appeared in 298 of 1,515 patients subjected to roentgen therapy, that is, in less than one-fifth. In view of this relatively low incidence, it is considered inadvisable to institute general prophylaxis against roentgen intoxication. Therapy was begun only if symptoms of roentgen intoxication appeared. The author compares the results of treatment with dihydroergotamine with the results of use of sedatives, vitamin B complex and belladonna. Dihydroergotamine is definitely superior to other agents. Dihydroergotamine not only proved the most efficient remedy for roentgen intoxication but also improved tolerance for nitrogen mustard therapy.

Ztschr. f. Hygiene & Infektionskrankh., Heidelberg

136:429-548 (No. 5) 1953. **Partial Index**

Streptomycin-Resistant Variants of Meningococci. W. Goeters.—p. 456.

*Cultural Isolation of Tubercle Bacilli After Pretreatment with Sulfuric Acid. W. Weigand.—p. 471.

Hetero-Hemagglutination: Clinical Significance. J. Nogalski and H. Lippelt.—p. 476.

Behavior of Cold Agglutinins in Active Immunization. G. Wildführ.—p. 501.

Investigations on So-Called "Large Bodies" in Green Streptococci. W. Bommer.—p. 510.

Isolation of Tubercle Bacilli After Pretreatment with Sulfuric Acid.—Because of the slow growth of tubercle bacilli, destruction of the accompanying bacteria is of vital importance if tubercle bacilli are to be obtained in pure culture. Weigand cites reports in the literature indicating that different concentrations of sulfuric acid have been used chiefly for this purpose, but there is no agreement on the concentration of the sulfuric acid nor on the length of exposure. To obtain more definite information about this, studies were made with various concentrations of sulfuric acid at the Hygiene Institute, on the sputum of 60 patients with established pulmonary tuberculosis. It was found that in tubercle bacilli cultures the accompanying bacteria can be destroyed by preliminary treatment with a 6% concentration of sulfuric acid. The specimen is treated with this concentration for 20 minutes, during which the mixture is shaken several times. Then it is centrifuged for 10 minutes at 2,500 to 3,000 rpm. Treatment with higher concentrations of sulfuric acid proved unnecessary; in fact, the yield improved by 37% when a 6% instead of a 10% concentration of sulfuric acid was used. Furthermore, particularly in the study of sputums and specimens of urine, growth was accelerated on the average by from 7 to 14 days. A greater incidence of positive results in urine and gastric juice specimens was obtained with the 6% concentration of sulfuric acid.

BOOK REVIEWS

Immunity: Hypersensitivity, Serology. By Sidney Raffel, Sc.D., M.D., Professor of Bacteriology, Department of Bacteriology and Experimental Pathology, Stanford University School of Medicine, Stanford University, California. Cloth. $8. Pp. 531, with illustrations. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1, 1953.

One area in which the medical student does not get adequate training is the field of immunity and sensitivity reactions; because of this the average physician is not sufficiently familiar with immunity mechanisms and the relationships of these and of sensitization reactions to the development of disease. Probably one of the reasons for this is the lack of an adequate textbook. Most of the books on immunology and allergy do not adequately cover the field, although there are exceptions. This book gives a complete coverage of immunity processes in general. The author, who is a well-known investigator in the field, has condensed a large amount of information into a work of reasonable size.

The book has four general sections, the first of which deals with the fundamental aspects of immunity. The second takes up hypersensitivity (allergic) mechanisms. The third deals with the mechanisms of resistance in specific infectious diseases including pneumococcal disease, anthrax, plague, cholera, bacillary dysentery, tuberculosis, botulism, diphtheria, gas gangrene, smallpox, poliomyelitis, and influenza. The final section concerns various other aspects of hypersensitivity, with detailed discussion of various types of tissue and blood antigens. The book should be of value to the student and to the practitioner, as it will provide a solid foundation in immunologic principles. It may possibly be of greater value to the student, inasmuch as the emphasis is on immunology rather than hypersensitivity and its relationship to the pathogenesis of disease. This is probably only natural, as the author is not a clinician, and, possibly more important, unequivocal knowledge of the relationship of hypersensitivity to disease does not, by and large, exist.

There are a few statements or views that might be challenged, but in no case are these very serious. On page 45 the author speaks of "one chemically homogeneous antigen." It is very doubtful that anyone has ever had a chemically homogeneous antigen, if by this is meant a single molecular species, and indeed the author, in subsequent statements, indicates the improbability of such a substance. On page 223 he states, "Atopic antibody will not transfer itself to smooth muscle strips as will antibody resulting from ordinary antigenic stimuli, and the uterine muscle of a patient with atopic sensitivity shows no tendency to contract when exposed to antigen in the Schultz-Dale bath." This is a controversial statement. Schild and his colleagues have shown contraction of human tracheal muscle in atopic persons when exposed to the antigen in vitro. On page 247, in speaking of delayed and immediate types of hypersensitivity, the author states, "On the other hand, one or the other form of hypersensitivity may be present exclusively." It is doubtful that one can have delayed hypersensitivity without the concomitant presence of the immediate type, although admittedly it may be difficult to show the presence of the immediate type, which may not be involved in the development of symptomatology. On page 266 the author states, "Contact sensitization to domestic animals, for example, is found to be directed toward substances extractable by organic solvents from the dander and hair rather than to the proteins from these sources." While this is probably generally true, it certainly is not absolutely true, inasmuch as Rostenberg has reported on a woman who had intense vesicular eczematous reactions from defatted hair. The book as a whole appears to have few typographic errors. This work is an excellent introduction to the study of immune and hypersensitive mechanisms.

Textbook of Preventive Medicine. By Hugh Rodman Leavell, M.D., Dr. P. H., Professor of Public Health Practice, Harvard School of Public Health, Boston, and E. Gurney Clark, M.D., Dr. P. H., Professor of Epidemiology, School of Public Health of Faculty of Medicine, Columbia University, New York. With collaboration of George F. Badger, et al. Cloth. $8. Pp. 629, with 26 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 18; 95 Farringdon St., London, E.C.4, 1953.

In the practice of preventive medicine the physician is a "clinical epidemiologist," who goes beyond the patient "and concerns himself with the circumstances under which human disease is likely to develop." In his attempt to prevent disease and its ill effects he attacks the problem on five levels: "(a) Health promotion; (b) Specific protection; (c) Early recognition and prompt treatment; (d) Disability limitation; (e) Rehabilitation." Such are the basic concepts of this work on preventive medicine. Announced as "an epidemiologic approach to preventive medicine" this is a book for the practitioner, not the health officer. The physician is portrayed as the health officer of the family, responsible for analysis and correction of the physical, social, and emotional forces underlying the development of disease. At the same time the physician and patient are portrayed as part of the community, with obligations toward society as well as each other.

The volume is more philosophical than the usual textbook of preventive medicine, possibly too philosophical for the average medical student. So much attention is given to general principles and the development of "a point of view, a philosophy, and a method of approach" that there has been sacrifice of much of the detailed factual knowledge on which the philosophy is based. The volume is best suited for the practicing physician or the student near the end of medical school. Though the book is the work of 21 collaborators, it has far less of the appearance of disconnected essays than is usually found in books of this type. The senior authors have achieved a high standard of coordination and unity and have produced a work that cannot fail to open new vistas in the practice of preventive medicine.

Grundzüge der pathologischen Physiologie. Von Helmut Vogt, Professor für innere Medizin an der Universität Kiel. Cloth. 45.60 marks. Pp. 582, with 180 illustrations. Urban & Schwarzenberg, Thierschstrasse 11, Munich 22; Meinekestr. 13, Berlin W. 15, 1953.

The major divisions of this book deal with circulation (heart and vessels), blood, respiration, nutrition, digestion, the liver, metabolism, the kidneys, enzymes and vitamins, hormones, allergies, and the nervous system. The informal style reflects the author's pleasure in teaching, and the amount of space devoted to the parts of the nervous system and their integrative action is commendable. A limited list of abbreviations, which can be frustrating to foreign readers but space-saving to the author, is included. The bibliography and index are adequate, and the illustrations are clear and informative. The book can be recommended as a comprehensive, accurate, and up-to-date summary of an important subject.

Essentials of Physiological Chemistry. By Arthur K. Anderson, Professor of Physiological Chemistry, Pennsylvania State College, State College, Pa. Fourth edition. Cloth. $5. Pp. 480, with 42 illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W.C.2, 1953.

This textbook for students with limited backgrounds in chemistry and biology, e. g., premedical students, includes a large amount of material on the chemistry of biological compounds. It is written for use with a laboratory manual. This edition includes new material on adrenal hormones, animal protein factor, antivitamins, antioxidants, carbohydrate metabolism, enzymes, folic acid, isotopes, photosynthesis, structure of starch and cellulose, and vitamin B_{12}. The book is well written, indexed, and printed.

These book reviews have been prepared by competent authorities but do not represent the opinions of any official bodies unless specifically so stated.

Radiations and Living Cells: An Introduction to Radiation Biology, in Which the Action of Penetrating Radiations on the Living Cell Is Described, with Special Reference to the Effect on Cell Division in Human Tissues. By F. G. Spear, M.D., M.A., D.M.R.E. Cloth. $3.50. Pp. 222, with illustrations. John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, 1953.

The author, a member of the Scientific Staff Medical Research Council, Strangeways Research Laboratory, Cambridge, England, attempts in this short monograph to bridge the gap between medical physics and radiation biology. This volume can be used by specialists and yet is elementary enough to be of value to the general scientific reader. The subject matter is based on the author's lectures, which are delivered to medical candidates in radiology. The history of radiation biology is discussed in the first chapter. Chapter 2 is a short review of general cytology. The scope of radiation biology is discussed in chapter 3, and the types of biological response to the action of penetrating rays are covered in chapter 4. The next three chapters deal specifically with irradiation of the skin and the alimentary canal, of the blood and circulatory system, and of the generative system. Chapter 8 deals with whole body irradiation and the use of atomic energy as a source of penetrating radiation. Chapter 9 discusses the application of radiology in cancer. The last chapter is devoted to theories concerning the actions of penetrating rays on living cells. The book contains 60 illustrations. The bibliography is arranged by chapters and includes only books of interest to the general scientific reader; those with strictly medical titles have been omitted. The effective style, which seems to simplify even the most difficult points in radiation biology, makes this book worth while for anyone who wishes to be informed on the subject.

Local Analgesia: Abdominal Surgery. By R. R. Macintosh, M.A., D.M., M.D., Nuffield Professor of Anæsthetics, University of Oxford, Oxford, England, and R. Bryce-Smith, M.A., B.M., B.Ch., First Assistant, Nuffield Department of Anæsthetics, University of Oxford. Cloth. $5. Pp. 94, with 88 illustrations by Miss M. McLarty. [Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2]; E. & S. Livingstone, Ltd., 16 & 17 Teviot Place, Edinburgh 1, 1953.

This small book illustrates how effectively attention can be drawn to a particular technique used in anesthesiology. The authors' apparent apology for the book is given in the preface: "If the reader does not share our view he will perhaps think it appropriate that this book should come from Oxford, the proverbial home of lost causes." This book is timely, for with the use of thiopental (Pentothal) sodium and curare local anesthesia is being abandoned when it would greatly increase the value of these agents. In addition to giving sound advice with regard to drugs, dosage, and concentration, the work covers briefly almost all the other pertinent information on the subject. Many illustrations are used, which allow condensation of the text. This is the best contribution that Oxford has made to the literature on anesthesia and it should be read carefully by all who are interested in anesthesia and in surgery.

Physical Examination on the Surgical Patient. By J. Englebert Dunphy, M.D., F.A.C.S., Associate Clinical Professor of Surgery, Harvard Medical School, Boston, and Thomas W. Botsford, M.D., F.A.C.S., Clinical Associate in Surgery, Harvard Medical School. Cloth. $7.50. Pp. 326, with 188 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1953.

These authors have, as Francis D. Moore says in the foreword, "emphasized not only the detailed techniques of examination, but also the approach to the patient as an individual. It is in this wise that the student gradually develops that clinical acumen which later on will tell him so much about the patient, his disease, his educational and social status, his fears, his anxieties, and his adjustment to the medical environment in which he finds himself. It is this clinical sense which will lead the young doctor to think of his patient as a man away from home, not a hospital case."

This is not a book of surgical technique, but it does discuss adequately many techniques in surgery. Physical signs are interpreted in relation to the pathology and disordered physiology of the disease. The primary purpose of this volume is "to focus attention on methods of importance of eliciting physical signs in surgical conditions." It fills a real need in student teaching, for it is intended to provide the student with knowledge that will make him more competent in diagnosis of surgical disorders. There are many excellent illustrations. The subject matter is clearly presented, and the index is complete. This is a magnificent and useful volume.

Trichloroethylene Anæsthesia. By Gordon Ostlere, M.A., M.B., B.Chir., Deputy First Assistant, Nuffield Department of Anæsthetics, University of Oxford, Oxford, England. Cloth. $2.25. Pp. 83, with 5 illustrations. [Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2]; E. & S. Livingstone, Ltd., 16 & 17 Teviot Place, Edinburgh 1, 1953.

This small book on trichloroethylene contains five chapters dealing with history, general characteristics, pharmacology, anaesthesia, and analgesia and concludes with a brief summary and an adequate index. Each chapter is followed by an extensive list of references, which are the most valuable part of the book. Complications associated with the use of this drug are adequately presented. The format of the book is excellent. Any physician interested in trichloroethylene will find this brief, compact volume valuable for reference.

General Physiology. By Bradley T. Scheer, Associate Professor of Biology, University of Oregon, Eugene. Cloth. $7. Pp. 613, with 110 illustrations. John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W.C.2, 1953.

General physiology is necessarily an abstract subject, and the author of this book notes in a frank and interesting preface that this analysis of physiological phenomena in terms of fundamental concepts is to supplement physiological knowledge obtained in the laboratory. The five parts of the book are devoted to physicochemical foundations, chemical dynamics of life, energy transformations in cells and organisms (including bioelectricity, muscular movement, and radiations), the development of organisms, and integrative processes (especially nervous and humoral transmission).

The text is accurate, clear, and smoothly written. The smoothness is achieved in part by efficient handling of the 1,453 bibliographic references. These are in alphabetical order at the end of the book and are represented in the text only by small superscript numbers. Elimination of names and dates permits concentration on scientific ideas and will be appreciated by readers to whom the old familiar formula "In 1898 Bayliss showed that . . ." has become wearisome and distracting. The author has also put some of the necessary new abbreviations, like ATP (adenosine triphosphate) and RNA (ribonucleic acid), in the index. This book presents, in a scholarly manner, a wealth of carefully documented facts, and it deserves a place in every library of physiology.

Künstliche radioaktive Isotope in Physiologie, Diagnostik und Therapie. Bearbeitet von J. D. Abbatt et al. Redigiert von H. Schwiegk. Cloth. 136 marks. Pp. 842, with 294 illustrations. Springer-Verlag. Reichpietschufer 20, (1) Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, 1953.

The first part of this excellent book gives a minute and comprehensive account of the physical, chemical, and biological facts underlying the rest of the work; this includes methods of measurement, treatment of biological materials, problems of dosimetry, and general biological effects. The second part, use of radioactive isotopes as tracers in physiology, pharmacology, and diagnosis, discusses individual chemical elements and applications to special problems in oncology, circulation, and endocrinology. The third part concerns therapy and covers local (including intracavitary) methods of administration, treatment of tumors, blood dyscrasias, and diseases of the thyroid.

There are some American and British contributors along with the German. Owing to the care of the authors, editor, and publisher, there is excellent integration of content and style, and there are no obvious errors in either the German or the English portions of the text. The book is authoritative and richly illustrated, and there is a good subject index. The alphabetized bibliographic references at the end of each chapter form an author index. This book is valuable to anyone who uses radioactive isotopes in the laboratory or in the clinic.

QUERIES AND MINOR NOTES

GAMMA GLOBULIN

To the Editor:—*I have read the plans for allocation of gamma globulin during the coming months and note that supplies are allocated for measles and infectious hepatitis. I would like to raise the question of further allocation for mumps in adult males and for prophylaxis of german measles (rubella) in early pregnancy. Although the efficacy of gamma globulin in these conditions is not well established, it should be available to the physician who wishes to use it, because of the well-known complications of these two diseases.*

Milton R. Aisenson, M.D., Kew Gardens Hills, N. Y.

Answer.—Evidence in support of the proposal to allocate gamma globulin for the prophylaxis of German measles in pregnant women exposed to the disease is suggestive but inconclusive; in the case of mumps, it is nonexistent. A study of 262 children in a closed institution experiencing an epidemic of rubella was reported by the Subcommittee on Gamma Globulin of the Medical Society of the County of New York (*New York Med.* 5:21 [Dec. 5] 1949). One hundred and thirty-three were injected with 6 cc. of gamma globulin and 129 retained as controls. In two of the former group, the disease developed within two days after injection and in six subsequently. In the same period, there were 22 cases among the controls. McLorinan (*M. J. Australia* 2:390 [Sept. 9] 1950) reported seven failures of prophylaxis among 520 pregnant women given 4 cc. of hyperimmune globulin within eight days of exposure. On the other hand, Korns (*J. Infect. Dis.* 90:183 [March-April] 1952) reported three trials, with the results respectively one apparently successful, one unsuccessful, and one equivocal. Bass (Advances in Internal Medicine, Chicago, Year Book Publishers, Inc., 1952, vol. 5), admitting the evidence for effectiveness is far from conclusive, nevertheless recommends giving 20 to 30 cc. as a prophylactic measure.

In the case of mumps, Gellis and associates (*Am. J. M. Sc.* 210:661-664 [Nov.] 1945) have presented some evidence to show that hyperimmune gamma globulin may be of some value in preventing the development of orchitis after the onset of parotitis, whereas normal gamma globulin was of no value. On the other hand, Enders and Janeway (Viral and Rickettsial Infections of Man, ed. 2, J. B. Lippincott Company, 1952, p. 519) have shown that doses of convalescent serum up to 200 cc. do not protect and that the antibody titers of such serum are relatively low.

In weighing the evidence for the use of gamma globulin in these conditions, it is important to distinguish between studies done with hyperimmune (convalescent) globulin and with globulin derived from large donor pools. Only the latter is available for allocation. In view of these circumstances and of the critically limited supply of the material, the Office of Defense Mobilization has of necessity limited allocation to those conditions in which it is of established prophylactic value.

CONTAMINANTS THAT MAY PROVE FATAL

To the Editor:—*What organisms will grow on whole blood at refrigerator temperature and are found occasionally as contaminants that produce serious and sometimes fatal illness?*

Victor Gregory, M.D., Portland, Ore.

Answer.—Organisms occasionally encountered as contaminants that will grow in banked refrigerated blood belong to several genera. The following organisms have been isolated from such a source: Micrococcus pyogenes aureus, Micrococcus pyogenes albus, Micrococcus citreus, alpha and beta hemolytic streptococci, Bacillus subtilis, Bacillus cereus, Bacillus mycoides, Pseudomonas aeruginosa, and species of Corynebacterium or Vibrio. Not all strains of these species can be expected to grow at low temperatures. Purposeful contamination of small quantities of citrated blood with dust or skin scrapings followed by storage of the blood in the refrigerator will yield the most satisfactory source of such organisms. All of these organisms are capable of producing serious illness if introduced intravenously in sufficient quantities with banked blood. Fatal and near fatal results from contamination with most of those listed have been observed. Further information may be obtained from the references below.

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BASEBALL "PITCHER'S ELBOW"

To the Editor:—*A 29-year-old baseball pitcher complains of chronic soreness of his right elbow ("pitcher's elbow"). The disability limits his playing time to about three innings. Can you give me any advice as to treatment and prognosis? Roentgenograms show no evidence of calcification.*

N. L. Masson, M.D., New York.

Answer.—"Pitcher's elbow" is usually associated with an incomplete rupture or tear of the tendinous attachments of either the extensor or the flexor group overlying its corresponding humeral epicondyle. In the beginning, rest and active exercise (pitching to the point of tolerance) should be permitted. Applications of external heat (infrared rays or diathermy), with gentle massage over the tender areas, may be given. Injection of procaine hydrochloride, 3 cc. of a 2% solution, into these areas may be done on alternate days. Graduated passive exercises to break up adhesions, either by abduction or adduction of the extended elbow with the wrist in supination, may be tried. Surgical treatment may be necessary as a last resort. This would consist of division and dissection of the attachments of the common extensor or flexor tendon group from the corresponding humeral epicondyle, with removal of any thickened or hypertrophied synovium or bursa from the radiohumeral joint. The prognosis depends on the duration and severity of the condition.

FRIEDREICH'S ATAXIA

To the Editor:—*A man, aged 34, has had hereditary cerebral ataxia for six years. Several cousins, aunts, and uncles have died from the disease, and his father has it. I have been unable to find help for him either through the literature or from consultants. Can you offer any suggestions?*

M.D., Maine.

Answer.—Presumably Friedreich's ataxia is meant, as there are no forms of "hereditary cerebal ataxia." Unfortunately, there is no known treatment of value for this condition, and the disease is likely to have a progressive course. All hereditary diseases show a tendency at times to become arrested spontaneously, and that possibility must always be held out to such patients as a hope.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

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PRINCIPLES AND PRACTICE OF PROGNOSIS, WITH PARTICULAR REFERENCE TO HEART DISEASE

BILLINGS LECTURE

Paul D. White, M.D., Boston

Although the importance of prognosis (preknowledge or forecasting) in medicine was clearly appreciated by Hippocrates, it has progressed very little and very slowly through the many centuries in contrast to the scientific development of etiology, pathology, diagnosis, and treatment. In the Dark and Middle Ages it drifted almost wholly into superstition. It still remains a stepchild in medical advance partly because it is a difficult subject and partly because, for some reason or other, it has rarely been studied scientifically. The few sentences devoted to it in the account of almost any disease or condition in almost all textbooks and papers are little more than a sop to the conscience. In cases of cardiovascular disease, the statement of prognosis often ends with the word "guarded," largely to play safe. Granted that we can not foretell the future with any certainty, I feel sure, nevertheless, that we can do better than we have in the past, or are doing now, by approaching the subject more scientifically and seriously. We have more facts and knowledge on which to base our prognoses than we utilize; we should call more than we do on the laws of chance in both our written opinions of prognosis of any disease and our discussion of the prognosis of any individual case with the patient himself, with his family, or with fellow physicians.

Here and there, however, in the past there have been physicians who have pointed to the importance of developing a more scientific attitude toward prognosis. For example, James Mackenzie, in the third edition of his book entitled "Diseases of the Heart" published in 1913,[1] wrote as follows in chapter 45 entitled "Prognosis": "I am rather afraid that our profession as a body does not recognize sufficiently its responsibility in regard to prognosis. When an individual submits himself for an opinion he does so with such implicit confidence that the verdict given may alter the whole tenor of his life. . . . A serious responsibility is thrown upon every practitioner at times in advising upon certain questions. 'Should a man give up his business?' This is a question on which advice is constantly sought and whether the individual be a statesman or a laborer, the greatest care is necessary in formulating an answer. If a practitioner seeks for guidance in the textbooks he finds merely general views which he cannot apply to the individual case."

The greatest difficulty in prognosis lies in its complication. There are more factors to be taken into consideration, especially in cardiovascular prognosis, than there are in either diagnosis or treatment. These factors are never just the same in any two cases, and so the prognoses listed in books or papers under the various kinds of heart disease are necessarily very rough estimates; the averages actually apply to very few cases. The difficulties in determining the outcome are illustrated in the discussions of prognosis in the sections on vascular hypertension, congenital heart disease, subacute bacterial endocarditis, and other common forms of heart disease in Cecil and Loeb's "Textbook of Medicine." [2] In the fourth edition of "Heart Disease" published in 1951,[3] I combined "prognosis" with "course" because of the difficulty of writing adequately about prognosis as an isolated subject.

There are many factors that combine to form the basis for cardiovascular prognosis in any given case. Thereon rest the foundations of the principles and practice of prognosis that should rightly become, with time, a science rather than an art. I will present 10 factors, although another might well be added representing chance and unexpected circumstances beyond our control or even beyond our knowledge. Often, of course, the experienced physician does, in the course of his career, acquire some considerable skill in prognosis, but this is often hit or miss and without conscious analysis of the separate factors that I will present.

HEREDITY

The first very basic factor in prognosis is heredity. There is no question but that, other things being equal, the person with long-lived ancestors who were resistant

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Read before the Section on Internal Medicine at the 102nd Annual Session of the American Medical Association, New York, June 2, 1953.

[1] Mackenzie, J.: Diseases of the Heart, New York, Oxford University Press, 1913.

[2] Cecil, R. L., and Loeb, R. F.: Textbook of Medicine, ed. 8, Philadelphia, W. B. Saunders Company, 1951, pp. 1076, 1097, and 1110.

[3] White, P. D.: Heart Disease, ed. 4, New York, The Macmillan Company, 1951.

to disease or who possessed the ability to withstand disease, whether it involved the heart or affected other body tissues, is more likely to survive a long time with some disorder or to recover from some very serious illness than is another person whose parents, grandparents, or siblings have succumbed early to some disease or have been more seriously disabled by it than would be expected. The more members of the family, immediate or in recent generations, of whom this is true the worse for the patient under consideration. The prognosis in the case of a 40-year-old man with coronary thrombosis is necessarily worse if both parents died from the same disease when they were in their forties or fifties. And, of course, the disease itself is, in the first place, much more likely to strike such a man in youth or middle age than it is a man whose parents remained healthy until advanced old age. The hazard is more than doubled when both parents were so affected at an early age than when the father alone was affected. The maternal inheritance is thought to be more potent than the paternal; perhaps this is so because it is relatively rare for a woman under 50 to have serious coronary atherosclerosis. When she does, it is much more significant than in a man. More studies of this relative sex responsibility are, however, needed for fuller appraisal of prognosis.

In practice, therefore, it is of great importance in the majority of cases for the physician to inquire specifically about the ages and causes of death or important illnesses in parents and siblings and even, on occasion, in grandparents, uncles, aunts, and children. This is frequently not done because of haste or carelessness, but its value should make it a routine procedure, at least in the case of cardiovascular disease.

An unfavorable family history should not depress any given patient; other more favorable factors can come into play to counteract it, including the almost certain new knowledge about the etiology, pathogenesis, and prevention of certain conditions, such as hypertension and coronary atherosclerosis, that is destined to be ours in the future. The application of this new knowledge will doubtless save or prolong many lives that are now seriously threatened and eventually protect at least in part from such diseases young persons who are likely candidates.

AGE AND SEX

Another factor that is related in particular to the patient is his age. Other things being equal, the older the patient after the period of infancy, the worse the prognosis. It must be realized, however, that chronological age is not the same as physical age. This fact must not only be recognized but be acted on in individual cases.

A factor also related to the person himself is his sex. Again, other things being equal, men are more vulnerable and have an earlier and higher mortality than women, particularly from cardiovascular disease. Of my own patients under the age of 50 with serious hypertension and hypertensive heart disease, three-fourths were men. It is, of course, common knowledge that coronary heart disease is, in particular, one of middle-aged men, and in such cases the prognosis, in my experience, has been somewhat worse than in women. Coronary thrombosis affects more than 20 times as many men as women under the age of 40 and about 5 times as many between 40 and 50. In the fifties, the ratio is about two to one, and after 60 the proportion is nearer one to one. Whether or not we may be able to alter this poor prognosis in men with time and trial, it is too early to say. It has been suggested that new therapy with hormones, perhaps combining the favorable effect of estrogen with the favorable effect of androgen, may eventually prove to be helpful. This is, however, still wholly a matter of the future.

TYPE OF DISEASE

The type of heart disease is, of course, of paramount importance, but happily in some types the picture has changed since a generation ago. At that time two kinds in particular had very bad prognoses. The worst was, of course, subacute bacterial endocarditis; it was about 99.9% fatal prior to 1944, but now it is better than 80% curable in efficient hands. It should be better than that eventually. The change that has come in our experience with subacute bacterial endocarditis can justifiably encourage us about other diseases that still carry bad prognoses.

The other serious type of cardiovascular disease that used to plague us was syphilitic aortitis. By the time an aortic aneurysm was large enough to be diagnosed or aortic regurgitation with an enlarging heart was found, the prognosis was already bad for any long survival; there were but a few months to a few years at most ahead. Now, of course, penicillin can check the progress of such conditions, except when far advanced, and cardiovascular syphilis itself is rapidly becoming history both because of the reduction of prevalence of the original lesion and because of its curability in either primary or secondary phases.

Congenital defects of the heart and the aorta still remain a baffling problem in many instances, with early death in infancy of some of the more intractable lesions. The horizon has greatly brightened, however, for thousands of persons with defects that now can be cured, in particular those with patency of the ductus arteriosus, uncomplicated pulmonary valve stenosis, or coarctation of the aorta, and for many others who can be helped although not cured, in particular the blue babies with the tetralogy of Fallot. Except for rare combinations of anomalies of other sorts, a large number of persons with atrial and ventricular septal defects remain to be helped. The former defects are already being operated on successfully, and it should not be too long before the latter also are helped by the skill of the cardiac surgery of the day.

The prognosis of rheumatic heart disease varies tremendously according to the severity of the initial myocardial involvement, the amount of valvular deformity, and the hazard of recurrent rheumatic activity. There has been, however, a considerable amelioration of these three factors, largely because of the prophylactic use of penicillin and, in fulminating cases, the apparent lifesaving effect of the hormones (cortisone and corticotropin), the successful reapplication of plastic surgery of the badly stenosed mitral valve, and the more scientific appraisal of the physical fitness of the patients. Now rheumatic scarring of the aortic valve is also being attacked surgically, and it seems quite conceivable that within a few years the damaged aortic valve itself can be improved or that a plastic valve can be introduced to correct the leak in regurgitation. It behooves all of us who have been following congenital or rheumatic heart cripples for years to see them again or send them to others for a new appraisal since a number of them can certainly be helped by present day surgery.

Another kind of heart disease that, although not common a generation ago, was often serious with bad prognosis is the thyrotoxic heart. Atrial fibrillation, generalized enlargement, and congestive failure frequently threatened life. Then came early surgery with subtotal thyroidectomy that, though often hazardous, did save lives. The prognosis today of thyrotoxic heart disease has improved so much that it is a very rare case indeed that cannot be helped to live at least a few years longer, not so much because of the advance in surgical therapy that can be applied but because of current medical treatment of the thyrotoxicosis itself added to ordinary measures for the control of the arrhythmia and congestive failure that are characteristic of advanced cases. Much more important, however, than this treatment of thyrotoxic heart disease is the remarkable reduction in prevalence of thyrotoxicosis as the result of its early recognition and cure, whether surgical or medical, before the heart becomes seriously involved.

In comparison to the kinds of heart disease presented above, in which the prognosis has been considerably improved of late years, there remain three types that continue to challenge us and for which we can, as yet, do little to better the prognosis. The first of these, although not very common, is cor pulmonale, both the chronic and the acute types. Advances have been made in the reduction of the number of cases as the result of protection from industrial dust disease, in particular silicosis, decrease in chronic and recurrent pulmonary infections, and more effective control of pulmonary embolism. By the time, however, that the heart is seriously affected, either acutely or chronically, with dilatation and failure of the right ventricle, the prognosis is very grave and life hangs in the balance. In the acute cases, there is as much, if not more, of a threat from shock or another pulmonary embolus as from the cardiac status itself. In the chronic cases, the underlying pulmonary disease or infection superimposed theron is likely to terminate life.

A grimmer problem is that of hypertensive cardiovascular disease because of its great prevalence and our failure to discover adequate specific therapy. There are many mild cases with good prognoses for many years, but, even of these, some become malignant; we cannot always prophesy which these will be. Even mild to moderate hypertension when added to other types of heart disease, especially the coronary disease, can be the "last straw to break the camel's back." It is in the study of patients with hypertension in particular that we need to gather together all known factors, such as heredity, on which to base a reasonable individual prognosis, since this condition almost more than any other allows a very great range of longevity. It is also of interest to try to determine when possible where the greatest threat lies, on the heart, on the cerebral circulation, or on the kidneys. It is all very well to state that about 60% of the patients with hypertension die cardiac deaths, that 20% have fatal cerebral vascular accidents, that 10% die of renal involvement, and that the remaining 10% die from other intercurrent disease. It is sometimes possible, however, to particularize in estimating the prognosis. For example, a very high diastolic pressure in a young or middle-aged man is an immediate threat to the heart especially; beginning abnormalities of urine and renal function point to serious kidney disease; and so-called hypertensive encephalopathy, especially with "little strokes," favors termination of life by a cerebral vascular accident.

Finally, the most difficult problem in cardiac prognosis, and one that concerns coronary heart disease, is angina pectoris. We have learned much about the prognosis of angina pectoris and myocardial infarction during the last 25 years, more than in all the centuries before and more than about almost any other aspect of the disease, such as pathogenesis and treatment; we have much more to learn than we know now, however. Even with what we have learned, we still feel that it is wise to "guard" the prognosis in almost every case. I believe, however, that if we analyze conscientiously all the other basic factors we are entitled to do more than to say of every patient with coronary heart disease that "God alone knows" about his future. It is here in a disease that is so prevalent and often so serious that we need most to apply what we already know or can learn about a patient both in our prognosis and in the limited treatment that we can recommend. Many patients with angina pectoris, whether mild on unusual effort or severe at rest, improve spontaneously or even recover completely in the course of weeks, months, or at most a few years because of the development of an adequate collateral coronary circulation. Some such patients are perfectly well 10 to 20 or more years after the first attack of angina pectoris, even though the electrocardiograms continue to be abnormal all the rest of the patient's life. On the other hand, some patients are so sick that they die of the very first attack or of some complication. What I have said about effort angina pectoris and angina pectoris decubitus is also true of coronary thrombosis with or without infarction; in the case of an infarct, a perfectly firm, well-healed scar may cause no trouble for the remainder of a long life.

In any case of coronary heart disease, no matter what its symptomatology, it is essential to appraise all the other factors in order to try to come to a reasonable conclusion about the prognosis. No two persons are exactly alike in these factors, and so we must particularize every case. At the present time, we are prone to say that the prognosis of coronary heart disease permits a range of one minute or less of life at the onset of the very first attack of angina pectoris to over 30 years for rare persons and that we have found that the average duration of life in several hundred cases of angina pectoris has been a little over 10 years, but that isn't nearly good enough. I'm sure that with the careful appraisal of all the factors, from that already referred to above as heredity to the last that I shall mention, namely the physician's own attitude, we can do much better in the future. We may eventually be able by the laws of chance to be reasonably successful in a given case, but that case must be individually and carefully appraised.

There are less common kinds of heart disease that should be referred to very briefly. As a rule their prognoses are oftener dependent on involvement of other parts of the body by the same factors than on that of the heart, as for example malignant tumors, trauma, certain infections and infestations, collagen and blood diseases, and malnutrition with avitaminosis. We can say little about the rare case of extensive myocardial disease of unknown cause except that the prognosis is usually bad by the time such a diagnosis is made, and survival is for months, or a few years at best.

DEGREE OF DISEASE

Of prognostic importance at least equal to the kind of heart disease is the degree or severity of that disease. Although this would seem rather obvious and is actually generally taken into account by the physician in every case, it is not adequately expressed in books or other writing. It is perfectly true that there may be a "touch" of coronary heart disease, of rheumatic heart disease, or of hypertension or only very slight coarctation of the aorta or of pulmonary stenosis just as there may be a fulminating or extreme degree of any of these conditions. And there may be in the same case a slight degree of one kind of heart disease and a high degree of another. For example, I have seen serious myocardial infarction in a patient with a trivial old rheumatic mitral valve lesion; in such a case one should base prognosis on the severe lesion and not alter it much on the finding of the lesser lesion. It has been said that on occasion one abnormality may compensate somewhat for another, hypertension for coronary insufficiency or for rheumatic mitral stenosis, but I have not found it so. In my experience the various lesions are additive in their prognostic significance, except rarely in referring to a particular state such as systemic venous congestion caused by chronic constrictive pericarditis or tricuspid stenosis added to mitral stenosis. In the latter condition if there is tricuspid stenosis as well as mitral stenosis, life is shortened but there may be a longer period, years sometimes, of systemic congestion due to the mechanical effect of the tricuspid stenosis (or of constrictive pericarditis) than when right ventricular myocardial failure is responsible, caused as it commonly is by mitral stenosis or by left ventricular failure secondary to aortic valve disease, hypertension, or myocardial infarction. At one time, the outcome of subacute bacterial endocarditis was all or none. It was uniformly fatal so that it didn't much matter whether it was only mild when first discovered. Now that it is usually curable, its extent does matter, although there remain exceptions to that statement.

One of the most important clues to help in estimating the degree of heart disease is the size of the heart. In general, the larger the heart the worse the prognosis.

STAGE OF DISEASE

Generally speaking, the earlier the stage the less severe the condition, as in myocardial failure, and the better the immediate prognosis with adequate treatment. Atrial fibrillation similarly is more amenable to treatment with restoration of normal rhythm if recognized at or soon after its onset. Sometimes this statement doesn't hold, however, as in the case of massive myocardial infarction, which is perhaps the greatest threat to life during the very first hour or two when it may produce serious shock. Even here, however, the earlier adequate treatment can be applied the better the prognosis.

TREATMENT

And again this leads us naturally to the seventh factor, namely the adequacy of the treatment. When antibiotic therapy was first introduced for subacute bacterial endocarditis, there continued to be a high mortality (though less than before) because there was not enough penicillin for a good many of the cases. As soon as enough penicillin or other antibiotics were available and were given early and adequately enough, the mortality steadily dropped to its present figure of something less than 20%. Congestive heart failure, which was not very well treated in my medical student and hospital intern days, is now very much better handled with fuller application of satisfactory digitalis usage, the introduction of the low sodium diet, and the wide employment of the mercurial diuretics. Patients sometimes used to die water-logged only a few months after the first evidence of myocardial weakness and failure; now their lives are not infrequently prolonged for several years and the edema controlled, at least in large part. Today such patients still die, but they are no longer water-logged. More often they die from complications, such as pulmonary embolism, than from the heart failure per se. Even the most ignorant physician is supplied with therapeutic tools that permit him to prolong lives that would have been lost a generation or two ago.

MEDICAL KNOWLEDGE

And this in turn leads us to the eighth factor that influences prognosis. That factor is the amazing annual increase of medical knowledge resulting largely from research. Right around the corner there may be a cure, or at least some improvement of a current therapeutic measure, that may radically alter the prognosis. One of the most exciting examples of this possibility is that of congenital cardiovascular disease. Septal defects of the heart are conditions that may fit here. Until very lately only sporadic efforts were made to correct them, but quite recently cardiac surgeons have devised techniques that enable them to close openings in the atrial septum. It seems quite likely that within the relatively near future ventricular defects may also be repaired, especially if the blood can be temporarily diverted by an artificial pump. Aortic valve surgery is also in its infancy, and before many years we may be able to prognose about cases of severe aortic regurgitation or marked aortic stenosis more favorably. Who would have dreamed 10 years ago that surgical cure of coarctation of the aorta would be almost commonplace? Even serious and intractable angina pectoris is already yielding, at least for considerable periods of time, to the radical medical thyroidectomy effected by the oral administration of irradiated iodine.

PATIENT COOPERATION

One of the most vital of all the factors in prognosis is the cooperation of the patient himself. He should have enough understanding of his heart disease and of the treatment, including even the minute details thereof, and enough confidence in his physician to follow his recommendations wholeheartedly. The difference between life and death may easily depend on this factor. That is why it is so essential for the physician to establish at the very beginning a good relationship and to take time to explain as fully as necessary what is wrong and what should be done, without going into tedious detail or recounting all the bad complications that could develop. An hour spent thus may save weeks and months of miserable apprehension and unhappy rebellion. I cannot overemphasize the value of this relatively simple measure that can so vitally affect both prognosis and treatment. Also it saves the time and energy of the patient who, not learning enough from his physician, surreptiously or even openly resorts to medical or quack literature. If inadequately informed, the patient may "shop around" until he finds a physician or clinic to give him advice to suit his fancy.

ATTITUDE

The last of this series of factors behind cardiovascular prognosis, and treatment too, is the attitude of all concerned including the physician, the patient, his family and friends, and even on occasion the community too. Twenty-one years ago I presented a paper entitled "Optimism in the Treatment of Cardiovascular Disease" based on a group of patients who had gotten along better than had been expected. This experience added still more to my optimism, and this was reflected in the attitude of my patients. Yet optimism can be overdone. It should not be allowed when there is no possible justification for it. On occasion, it can give rise, when unwisely used, to overconfidence and carelessness on the part of both physician and patient and lead to unfortunate results. The old adage of "while there is life, there is hope" proves true often enough even in the sickest patients to justify its use without any overconfidence. The patient's interest in living may be supported by the attitude of those about him, and this may be the narrow margin needed for survival. It is, to be sure, difficult to weigh this factor of attitude, but from experience we know that it counts and so we should use it to the best of our own ability and try likewise to persuade the patient and those about him to make the most of it.

CONCLUSION

What remains to be done now is assessment of the relative values of the various factors that I have mentioned, but this an extremely difficult task to perform; in fact, in the present state of our knowledge, or of our ignorance, it is practically impossible. Every case must be appraised individually; in none are all of the factors of exactly the same value. Yet a start can be made now, and eventually this art can become a science. Each factor might be graded as favorable or unfavorable, then the various factors might be given relative values, and finally, a total estimate figured, based on the laws of probability, with still an additional percentage of something unforeseen. This obviously is too complicated at present and so I will not belabor the point. I do believe, however, that we can do better than we are doing now about the prognosis of heart disease.

264 Beacon St. (16).

ROLE OF PHYSICIAN IN PREVENTION OF MUSCULOSKELETAL DEFORMITY AFTER POLIOMYELITIS

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Even as this report is being made, everyone is hoping that a vaccine will be developed that will prove that acute anterior poliomyelitis need no longer be feared. Although this is no idle dream but a reasonable expectation, it does not alter the demands for care arising from the epidemics of this year, of many years past, and, perhaps, of a few years to come. Because of the nature of this disease, its prevention, but not its cure, can be reasonably expected. To those physicians who treat the after-effects of poliomyelitis, this realization of their limitations is not new, and they are all keenly aware that despite their greatest efforts, their success in preventing deformity and restoring some measure of physical independence must soon seem negligible when compared with the proof that prevention of the disease itself is assured.

Since it is so easy to blame the limitations on the nature of the disease itself, it becomes all the more necessary to assess the physician's possibilities and thereby define his responsibilities. Admittedly, the after-effects of poliomyelitis are difficult to care for, but there seems little excuse for the gross negligence and disregard of principles of care so commonly seen. Because no two patients are alike, the physician can blame the products of his inadequacy on the underlying disease, the patient's personality, the family's lack of cooperation, in fact everything but his own failure to provide the necessary essentials of care. At the very least, the physician who accepts the responsibility for the care of the patient with poliomyelitis must have the training and facilities to prevent or minimize, insofar as is humanly possible, the musculoskeletal deformities so characteristic of the after-effects of that disease.

Even though adequate facilities for intensive muscle reeducation are not always available, the control of deformities must be accepted as the physician's respon-

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sibility. Before this responsibility can be fully appreciated the following facts must be recognized: 1. The causes of deformities can be determined before the deformity is evident and in most cases can be adequately controlled if discovered and treated early. 2. The presence of even mild deformities can severely limit the possibilities of recovery through muscle reeducation and functional training. 3. A deformity never exists alone, but rather one deformity causes another and can be expected to cause a chain of disabilities, perhaps far removed from the site of the original one. 4. Deformities must be prevented, because they rarely can be corrected by conservative measures once they have developed. These are proved facts, not fancies, and put the responsibility squarely up to the physician who accepts the care of these patients.

Unfortunately, the development of the usual musculoskeletal deformity is slow and insidious. At its beginning it does not cause specific pain, swelling, fever, unconsciousness, or any of the symptoms or signs commonly associated with impending disaster. Many physicians who would consider it a disgrace to permit an appendix that is acutely infected to rupture while a patient is under their care apparently have no such feeling about development of deformities in their patient with poliomyelitis. Too frequently the physician is incapable of examining the musculoskeletal system. By the time he finally realizes that all is not well, deformities are far advanced and largely uncorrectable.

It can be said that, when a deformity is easily recognized, it is then too late to do much about it. Simply stated, the deformities that are included in this report may be defined as distortions of bodily alinement and/or mobility due to structural changes in the tissues that make up the musculoskeletal system. If atrophy due to denervation and the depression of bone growth that probably has the same basis are excluded, it can be stated that all other deformities result from nothing more mysterious than persistent, faulty position. It must be realized that, if any portion of the body is repeatedly held or forced into a faulty position, irreversible changes in those tissues making up that bodily segment must eventually take place. Thus, deformities can occur during periods of rest or activity. They will develop in direct proportion to the intrinsic strength of the tissues involved, the force of the stresses applied to these tissues, and the period of time these stresses are applied.

The causes for faulty positions are many. Muscle weakness, or imbalance of muscle strength, and changes in the intrinsic tone of supportive structures are usually the underlying factors in the development of all deformities. Certainly these may be complicated by the presence of pain and spasm. Even these factors would not cause significant deformity if not aggravated by the controllable factors of poor nursing techniques, inadequate splints and braces, haphazard patterns of movement, obesity, irresponsible weight bearing, and overactivity. There are many methods of preventing deformities, ranging from the use of pillows and sandbags grossly supporting the body to plaster casts completely enclosing the involved segments. Each method has its advantages and disadvantages. Pillows and sandbags are immediately available, are easily rearranged, and, if used expertly, provide the comfortable support so necessary during the acute and very early convalescent phases. But pillows and sandbags are of little or no value when activity is increased. Plaster casts can be readily applied and will rigidly hold any position the physician decides is necessary, but closed casts preclude the maintenance of joint mobility and the early graded activity that constitutes the basis of modern treatment. Neither of these methods, therefore, have more than temporary value, and they constitute a real threat to the patient's future if used too long. Optimum recovery demands a careful balance of activity and inactivity during convalescence. This usually requires at least the temporary use of supportive apparatus. When externally applied support is necessary, it must be easily applied and just as easily removed. It must adequately support the weakened segments and, if at all possible, permit and even assist safe patterns of movement. Unfortunately, such apparatus is not always readily available. Many brace makers have been slow to accept their responsibility as a member of a team that must function not only expertly but quickly. Deformities, particularly in the hands and feet, develop rapidly and might well be irreversible if the splints are not delivered until weeks or even months after they are ordered. The medical profession would not tolerate such irresponsibility from a druggist. On the other hand, if all physicans who treat patients with poliomyelitis were capable of determining the type of apparatus necessary, capable of writing specific prescriptions to the brace maker, and then intelligently checking the final fitting, the brace makers, I feel sure, would do their part.

Too frequently, a brace maker is blamed for his inability to make a comfortable and well-fitting hand splint, corset, or leg brace when the real reason is that the physician failed to see the need for such apparatus until after deformities occurred. Structural deformities of the hand and wrist, back, knees, and feet simply cannot be fitted with effective apparatus regardless of the skill and responsibility of the brace maker. It must also be realized that children grow, both children and adults change weight, and apparatus wears out. The perfectly constructed brace, corset, or shoe may be more dangerous than no support at all if the child grows out of it or it becomes distorted with use.

Perhaps too much emphasis has been placed on the use of apparatus in preventing deformity. It must be realized that the prevention of musculoskeletal deformities can never be accomplished through the use of apparatus alone. Recovery and resumption of activity go hand in hand. No brace, corset, or splint, regardless of strength and perfection of design, can possibly completely protect the patient against deformities arising from haphazard patterns of movement and overactivity, particularly in weight bearing positions. Obviously the physician must be trained and experienced in kinesiology so that he can recognize faulty positions and movements that must in time cause deformity. During convalescence only those activities that can be done coordinately and safely are permitted. In the chronic stage, functional activity may demand the use of abnormal patterns, but activity that would endanger future structural alinement must never be permitted. The physician should be constantly looking ahead to be sure activities permitted will not bring about deformity later.

When spotty paralysis so typical of poliomyelitis results, the remaining muscle strength may frequently have little value from a functional standpoint but may act as a severe deforming factor by its unopposed action. Muscle imbalance about the foot and hand commonly cause deformities in this manner. This requires careful evaluation by the physiatrist and orthopedic surgeon. If balance through muscle reeducation is not thought possible, then the deforming action should be eliminated by tenotomy. If possible, the insertion of the tendon should be transplanted to another position where use can be made of the strength of the muscle without its deforming action.

Even if an extremity is extensively paralyzed, it should be kept mobile and in good alinement. The use of assistive and adaptive apparatus including externally applied prosthetic appliances makes it possible to restore some degree of usefulnesss even to completely flail extremities. All too frequently, we find that such apparatus cannot be used because limitation of motion and structural distortion of the extremity has been permitted to occur. This is particularly true in involvement of the upper extremities where contractures make it impossible to apply "feeders" and other adaptive apparatus. Amazing improvement in functional capacity of an extremity with spotty paralysis is often possible through orthopedic surgery. Again too frequently, the extremity is neglected because "surgery will be done later." When the time for surgery finally arrives, deformities have developed and the surgeon is faced with an impossible problem.

Some of the most tragic examples of faulty positioning are seen in patients who were confined to respirators during early convalescence. The fact that a patient was confined to a respirator is no excuse for the severe contractures so commonly seen about the thumb, fingers, wrist, forearm, and elbow. The early and intelligent use of hand splints and gentle mobilization will easily minimize these deformities of disuse and persistent faulty position and will in no way interfere with the more dramatic lifesaving procedures. Again and again we have seen patients whose life was saved by the skilful use of respiratory aids only to find when they were finally weaned away from these aids that irreversible deformities of bodily segments had occurred. Even in the most critical and drawn-out respiratory problems, these deformities could have beep kept under control.

While there should be no compromise with normal skeletal alinement, the degree to which bodily segments are mobilized should be specifically determined in each individual case. If persistent contracture of tissues exists, it is wise to assume that underlying muscle weakness also exists. When significant weakness exists, "fortunate" or planned tightness may be necessary to prevent structural deformity and support necessary activity. Irresponsible stretching of the weak back might permit scoliosis to develop, which a little tightness would have prevented. Irresponsible stretching of the triceps surae might permit a severe calcaneous deformity to occur. Planned tightness would have safely anchored the os calcis and prevented its forward migration. A good rule to follow is that no structures should be stretched unless there is accurate knowledge of the underlying strength and the possibilities for deformity if mobility is accomplished.

SUMMARY

The prevention of structural deformities of the musculoskeletal system following poliomyelitis must be accepted as the physician's responsibility. Not all deformities can be completely prevented, but they can be kept within reasonable limits by known methods. No physician should assume the care of patients with the after-effects of acute anterior poliomyelitis unless he has (1) an understanding of the pathogenesis of musculoskeletal deformities, (2) knowledge of the relative importance of the various deformities and their relationship to each other, (3) training in kinesiology with the ability to recognize normal and abnormal static positions and movement patterns, and (4) the tools available to care for the factors that result in deformity.

Tumor Metastases.—The invasive properties of leukocytes and macrophages depend on their being isolated single cells *and on their highly developed ameboid motility*. That cancer cells also possess ameboid motility was reported as long ago as 1863 by Virchow and has been demonstrated in tissue culture by many workers in recent times. These tissue culture studies have shown beyond all doubt that tumor cells in general are ameboid, whether they are of mesodermal or epithelial origin.

Neoplastic epithelial cells from carcinomas of man and of laboratory animals have been photographed with a moving picture camera and their rates of speed determined. Cells from breast cancers, for example, moved at an average of 0.7 μ/min., with a maximum rate of 2.4 μ/min. Cells from a carcinoma of the kidney attained a maximum rate of 4.4 μ/min., while some cells from a mouse fibrosarcoma traveled at 6.2 μ/min. Of additional interest is the observation that even tiny clusters of three to five epithelial cells from a rabbit carcinoma progressed as an ameboid unit. It was also demonstrated that the cells of benign epithelial tumors and even nonneoplastic glandular epithelial cells (from cystic disease of the breast) may be motile in tissue culture, provided that these cells are first forcibly detached from their companion cells. It appears probable, then, that the local invasiveness of cancer cells depends upon their ability to progress by ameboid movement.

Why, then, do not the cells of benign tumors or the cellular components of the various organs also invade, since they too, at least in some instances, are capable of ameboid *motility*? There is evidence to indicate that the cells of normal tissues and also the cells of benign tumors are so firmly attached to one another that they are unable to escape. In contrast, the cells of malignant tumors are often found in the body free from the parent tumor.

The reason that the cancer cells become free is their greatly reduced adhesiveness. Micromanipulation studies have shown that the *magnitude of force required to separate* a pair of normal squamous epithelial cells from each other is much greater than the force required to separate cancerous squamo cells.—Dale Rex Coman, Mechanisms Responsible for t Origin and Distribution of Blood-Borne Tumor Metastase A Review, *Cancer Research*, June, 1953.

PRIVATE BEDS IN MEDICAL TEACHING

S. Howard Armstrong Jr.; M.D., Chicago

Teaching hospitals face today the large-scale use of private beds in their programs. The pressure is economic and unavoidable. Twenty years ago a public ward bed cost the patient $4 a day and cost the hospital not much more. Many a privately endowed teaching center had over 200 public ward beds divided among the teaching services. Today a ward bed costs the hospital between $15 and $20 a day. If the endowed hospital assumes the cost of as much as half the patient's bill, 200 teaching ward beds cost the hospital well over $600,000 a year—the interest on a 13 million dollar endowment. Most hospitals do not have such financial resources. The few that have, because of research and other commitments, do not want to expend all their funds on ward beds. With the growth of private hospitalization insurance, they are finding that they do not have to.

More and more insured patients demand private medical care. They enter the ward bed from the private physician's office, and they return to the office for follow-up. Hospitals that continue "free dispensaries" find little room to hospitalize their sick under the same roof and the care of the house staff. A dispensary without ward beds has no educational role. It can no longer provide vital continuity of patient observation.

With the shift to greater use of private beds, the practicing physician again resumes his ancient role in medical education. The patients are his, not those of his service chief, of the educational director, or of the medical school department head. The educational result is directly determined by his teaching skills, by his philosophy as to proper relations of old and young in medicine, and by his wisdom in appraising his freedom to act independently under pressures. The full-time staff member, the professional educator, at best can only help.

Therefore, this report is prepared for the practicing physician who wants background information on modern processes and standards of clinical education to strengthen teaching in his own hospital. It is not intended to provide the complete background. Taken as such, it will surely fail, for it represents a first and partial study. It poses many questions whose answers I *do not know.* It is based on about five years' experience in a predominantly private bed teaching hospital, in which I was a department head, more than five years of teaching at predominantly public ward hospitals, and many periods of observation of various types of hospitals over the country. In many such institutions the problems are being given vigorous thought and action. In the subsequent discussion some arbitrarily selected centers are cited, not as having uniformly workable solutions but as a profitable starting point for inquiry and visit. Many others that are not cited are as important in their contributions.

THE PROBLEMS

"Private beds in teaching" has been the subject of many a discussion at many a recent meeting of medical educators. Sometimes it is presented as a comparatively easy shift in patient material, but this is not always the case. True, a few hospitals, through concerted effort on the part of the attending staff, have successfully made the shift. They compete successfully for a high caliber house staff in this era of large discrepancies between number of positions and number of candidates. Other hospitals, sometimes as rich in facilities and in a respected senior staff, have not been so successful, despite elaborate printed programs, rising stipends, and full-time department heads.

Before the economic impact of World War II, the public wards and the dispensaries were the usual domain of clinical teachers. When chosen for his ability in and love of teaching, the ward clinician has always held high honor in his hospital regardless of the size or make-up of his private practice. With the exception of a very few centers, medical students were rarely assigned to private pavilions or semiprivate wards. When they were, they were usually paid an extern stipend as a recompense for lack of educational function.

The old hierarchical distinction between the private and ward house staff has been familiar in many a hospital dining room. Competition for the ward jobs was intense. The happy winners began by working 18 hours a day for board, room, and laundry. The private jobs in the same hospital often were held by men waiting, and saving, for a ward opportunity.

By and large, the public wards of our teaching hospitals have set a very high educational standard (though those indifferently staffed have sometimes fallen far below the few old-time private services that took teaching as their business). In my own experience it has been the exceptional graduate of the unusual private service who can match the good public ward service graduate in early clinical maturity, in habitual application of scientific knowledge, and in critique. Although not so sharply distinguishable in his forties as in his thirties (the able man, no matter where trained, inevitably passes any colleague who relaxes his effort), the ward-trained physician's familiarity with independent action under supervision, in addition to his technical skills, seems to have given him this initial lead and the habit of continued self-education.

The graduate of a pre-World War II senior residency has sometimes found himself prepared to undertake far more serious problems than his first private patients might have wished him to assume. Though lack of opportunity to take advantage of his training was perhaps briefly troublesome for the young physician's ego, few of his patients suffered purely by reason of his intensive hospital training for it often gave him experience for which physicians of previous generations had to wait many years in apprenticeships, and let him grow as fast as intellect and character permitted.

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Many elements of the apprenticeship have survived in the public ward system in a broadened form consistent with the impact of microbiology, physics, chemistry, and psychodynamics on clinical practice. The medical student, released from the lecture room seat, became an apprentice of the intern at the bedside and in the clinical laboratory in his third and fourth years; the intern became the apprentice of the assistant resident. These younger residents, no longer bound to a single man in practice, served successively as apprentices of several men of diverse scientific and clinical skills.

The keynote in this type of residency was graded responsibility. At every level (medical student to senior resident), performance was under open appraisal. Those unfit by temperament or ability for further progression as a rule were as readily relieved of responsibility as those who were able were advanced. This has been often true for the attending staff. Hospitals devoted to teaching have effected ward staff changes with far fewer repercussions than are regularly occasioned when a physician's access to a private pavilion is limited or cut off. Ward beds may represent a physician's public service, his study, or his prestige. Private beds represent his livelihood. Independent private practice still fills the majority of private hospital beds in this country. It is, and must be, the core of our discussion. Most patients enter these beds because of the physician's individual standing in their eyes. The educational standing of his hospital is of lesser importance.

Every physician is in competition with at least some of his colleagues as well as others who profess, without formal medical training, to treat the ills of mankind. Often he is in competition with members of his own staff. Competition, in differing form, exists for privately or university-managed group practice. Most of the real and difficult educational problems that face private services stem from these facts. To meet them, factors determining local answers to these questions need evaluation. They vary for each medical center.

For the training of students and interns, the following questions might be asked: 1. What physician-patient and physician-physician relationships determine effectiveness when private patients are the teaching material? 2. Can the private services present a proper range and severity of illness? 3. Can the private service follow-up opportunities provide proper continuity of patient observation?

In training of residents, one might ask: 1. What physician-patient and physician-physician relationships affect the sharing and delegation of clinical responsibility for private patients? 2. How does teaching with private patients modify a physician's attitudes toward the incomplete nature of medical knowledge and the ritualistic aspects of medical practice? 3. In a teaching hospital with a large financial deficit, can the shift to private patients be done without the loss of educational standards? If not, what is the minimum proportion of public ward beds necessary? 4. If a private institution cannot afford this minimum, what determines success or failure of cooperative plans with tax-supported hospitals?

For all levels of teaching, one might ask: What factors have governed and what factors should govern the selection of attending staffs on private teaching services? What can be useful roles of trustees and of universities?

TEACHING OF CLINICAL CLERKS AND INTERNS ON PRIVATE SERVICES

The teaching hospital has been called the conscience of the medical profession, in providing a place in which questions must be asked, may be asked by anyone concerned with patient care, and must be answered if possible.[1] Such an atmosphere cannot but enhance standards of care for patients of any economic status, wealthy to indigent.[2] Let us, however, examine the patient's schedule for the first three hospital days on an average public ward. Day 1: (afternoon) admission history, physical examination done by intern and (evening) repeated, with routine laboratory work by fourth year clinical clerk. Day 2: (early morning) checked by resident and (midmorning) checked by attending physician on teaching rounds; (afternoon) two third year clerks arrive and fail to see the patient, who is undergoing roentgenographic studies. Day 3: (morning) third year clerks return to take a history and make a physical examination without looking at the chart; (afternoon) four to eight second year students elicit a halting history and laboriously stare at, feel, thump, and listen to designated body areas. A private patient will not submit to this type of schedule. The ward patient often does so through lack of an alternative.

Where the tact and humanity implicit in the golden rule obtains, the usual teaching exercises, such as bedside rounds, detailed case presentations, checking of physical findings, and amphitheater demonstrations, have been successfully carried out with private patients.[3] These courtesies are as follows: 1. Always ask both the patient's and the attending physician's permission. 2. Always tell the patient what to expect. 3. Never discuss details of diagnosis, therapy, or prognosis before the patient unless properly authorized. These rules are as applicable on a ward as on a private pavilion. Though the cost is irrelevant to teaching value at this level, there must be enough patients and with examples of pathological conditions corresponding to the serious pathological lesions the young physician will later encounter.

RANGE OF CLINICAL MATERIAL ON PRIVATE SERVICES

Though some physicians are destined to spend three-quarters of their lives treating patients with minor complaints, students, interns, and residents need as inpatients persons who are really ill. A backlog of hard-thinking experience acquired during youth with the seriously sick is invaluable to a career of sorting major from minor illnesses and to an appreciation of interactions of "organic" with "functional" factors. On some private services the range of disease compares with the best of teaching wards; on others it does not. The reasons for this are varied. A busy physician may find certain new patients hopelessly time-consuming for office schedules. A surgeon may find growth of practice coincident with increasing subspecialization. Each physician has an interest, both financial and human, in securing admission for his own patients. This can, but does not always, coincide with teaching interest. When interests regularly conflict, the private service encounters a problem in teaching material as serious as that of the university hospital that admits patients according to staff research interests. "Three-day work-ups" and "sales force check-ups" can ruin a private medical service for teaching as effectively as a predominance of rectal or industrial cases can ruin a general surgical service.

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[1] Armstrong, S. H., Jr., and others: Report of the Advisory Committee on Internships to the Council on Medical Education and Hospitals of the American Medical Association, J. A. M. A. 151: 499-510 (Feb. 7) 1953.

[2] Gregg, A.: On Medical Education, Chinese M. J. 64: 145-148 (May-June) 1946.

[3] Halsted, J. A.: The Role of the Nonteaching Hospital in Medical Education, New England J. Med. 243: 730-733 (Nov. 9) 1950.

Such patients have educational value only when (*a*) they are so selected that a high percentage reveal illness severe enough to warrant hospitalization and (*b*) the work-up of student and/or house officer is listened to and appraised and a plan of action and follow-up instituted before the patient's discharge. This has been successfully done on the residency level at the New England Medical Center's Pratt Diagnostic Hospital, Boston (Samuel Proger, M.D., chief),[4] and on the student level at Georgetown University Medical Center, Washington, D. C., (Harold Jeghers, M.D., chief of medicine).

Is the remedy to formulate hard and fast admission quotas for teaching needs and to put an experienced resident in charge of their day-to-day enforcement? From the resident's standpoint, the answer is no. True, the admitting resident on a public ward gets valuable training in rapid clinical judgment. Few sensible persons would want to screen admissions from a large practicing staff. The chances of remaining anyone's friend are small, no matter how astute or fair one may try to be. From the patient's standpoint, the answer is also no. His physician has screened him. From the senior administrator's standpoint, again the answer is no. He himself has no time to screen individual admissions. His usual lay admitting clerk scarcely can be expected to be sensitive to teaching values. This clerk can, however, record admission and discharge diagnoses for every patient and tabulate these, together with duration of stay, for every physician and every service. This shows which physicians carry the greatest daily responsibility for the spirit of the teaching hospital.

The first step in the remedy is regular publication of such a report to all involved in educational policy—to staff, administrators, and trustees. I have prepared representative tabulations for 1948 to 1951 for the department of medicine of the Presbyterian Hospital of Chicago. For such data, which are necessary for equable house staff assignments, it is unwise to rely on word of mouth reports from the house staff.

When an administrator finds difficulties in publication of the report, or the report is not read, this may reflect the wish of a significant part of the staff that education keep out of the way of existing practice. The admitting policy that cannot be subverted by persistent sabotage does not exist. When, per contra, publication is welcomed, the following questions come to open appraisal: What patients should not be assigned to the house staff or students? Should there be a "two-day limit" ward for emergencies, real or suspected? Should there be a unit for centralization of studies on long-term patients? Is an inpatient diagnostic unit needed? An inpatient diagnostic unit such as that at Columbia-Presbyterian Medical Center in New York (R. F. Loeb, M.D., physician-in-chief), can help to solve the teaching material problem mentioned above by segregating purely service work. Such a unit helps the physician who wants this work. It reduces the hospital's overhead on roentgenography and laboratory procedures. It can help the hospital's drive for funds, for it is not always the sickest patient who carries to the community the word that the hospital does a good job in service.

Highest standards of medical records and of personal performance of critical laboratory work can be successfully required of interns and students elsewhere in the hospital, where the records deal with real illness in contrast to the endless negative results and the complaint "we are being exploited as routine technicians" is validly eliminated. It should be noted in this connection that the recent report of the Advisory Committee on Internships [1] emphasizes these standards and recommends that personal performance of laboratory work be made mandatory during some phase of every approved internship.

Through study of such matters many hospitals have formulated workable admission policies aimed at needs of both education and practice. If they are wanted and backed by the staff and kept flexible and checked by the monthly admission data, chances of success are good with a minimum of cumbersome administrative rulings. Some hospitals enforce rigid regulation of a physician's admissions according to his role in the educational or research program. Applicable in university hospitals, such regulations are met less frequently in primarily service hospitals with teaching aspirations. If there is a keen general interest in teaching, it is feasible to assign house officers in terms of teaching performance, which includes a proper selection of patients for admission. This renders the hospital's competitive position for house staff less vulnerable to a staff minority.

The private services of the Barnes Hospital in St. Louis (Harry Alexander, M.D., chief) provide an example of policies regarding bed and house staff assignments in relation to teaching needs.[5] Policies regarding admission times for patients, etc., in relation to teaching needs are exemplified by the Emory University Hospital in Atlanta, Ga. (David James, M.D., chief of private medicine).

FOLLOW-UP OF PRIVATE PATIENTS

Without early establishment of habits of following the individual patient, the physician begins and may end by handling disease as a disembodied constellation of symptoms, signs, laboratory findings, and behavior characteristics artificially suspended in time by the accident of discontinuity in study.[6] Disease processes are not static, and the sequences need to be seen in embodied form.

On a private service great personal effort must supplement written schedules. The house officer must list patients on whom follow-up is wanted and arrange conferences flexibly enough to meet schedules of students and of the private physician.

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[4] McCombs, R. P.: Diagnostic Clinics for Private Ambulatory Patients, J. A. M. A. 148: 113-115 (Jan. 12) 1952.

[5] Alexander, H. L.: Successful Training Program for House Officers on Private Medical Service, J. A. Am. M. Coll. 24: 236-238 (July) 1949.

[6] Cadmus, R. R., and Thoms, E. J.: The Group Clinic: A Pattern for the Future, Mod. Hosp. 70: 48-50 (April) 1948. Futcher, P. H.: A Private Outpatient Clinic in a University Hospital: Its Role in the Teaching Program of the Department of Medicine, J. Med. Educ. 26: 430-436 (Nov.) 1951.

The spontaneous development of staff groups interested in a certain type of disease can result in flourishing joint follow-up clinics. Patients are often under care of physicians in independent practice, as in the case of the work in psychosomatic disease at Michael Reese Hospital (Roy Grinker, M.D.), and the tumor clinic (representing surgery, medicine, pathology, and radiology) at Presbyterian Hospital (F. H. Straus, M.D.), Chicago. These clinics cannot be forced; spontaneity is their essence. Thus the emphasis of the psychiatric aspects of ordinary medical and surgical practice is impossible on private services where recent advances in psychodynamics are unfamiliar.

The private physician's share of effort is much more efficient if his office is in or near the hospital. If it is on the other side of the city, it is hard to persuade the busy patient to "drop over to the hospital next Tuesday so that Dr. X and Dr. Y who helped take care of you can join in observing progress."

This also goes for the busy private physician. When he has an office full of waiting patients some traffic-filled miles away, his daily answer to students and house staff can be, "Look, just do this, I've got to go." He goes, and they do as told. "Rounds and run" is as bad for the interchange of medical thought as "eat and run" for interchange at a dinner party. Thus offices close to the hospital can be as important to the community hospital with a good intern program as to the university center.

TEACHING ROUNDS AND CONFERENCES

The first American clinical professor of medicine described the function of teaching rounds for his hospital trustees in 1766 as follows:[7]

> There the clinical professor comes to the Aid of Speculation. . . . He meets his pupils at stated times in the Hospital . . . he asks all those Questions which lead to . . . knowledge of the Disease and Parts Affected, and if the Disease baffles the power of Art and the Patient falls a Sacrifice to it, he then brings his knowledge to the test, and fixes Honour or discredit on his Reputation by exposing all the morbid parts to view. . . .

The strong words of the Advisory Committee on Internships[1] add little beyond 20th century emphasis to Dr. Bond's thought.

Why do teaching rounds face special problems on private services? To be assured that all persons involved (student to resident) are working on the implications of every case takes time. The private physician already knows his patients to variable extents. Unless he also knows that properly stimulated students and the house staff will inevitably unearth some important fact about his patient he does not know or some pertinent literature he has not seen, he may regard the time of teaching rounds as wasted.

Then an occasional physician, skilled in running a large practice, finds himself ill at ease, even unable to talk, in guiding lively two-way communications between colleagues of grossly unequal experience. He feels as much out of place as many an inspiring teacher and researcher might feel in a busy private office.

Delegation of rounds is a valuable though partial solution. Despite the value for specialized (infectious disease, neoplastic) rounds, unless the private physician reserves some part of the bedside teaching for his own efforts, service *esprit de corps* suffers as badly as does his opportunity for continued self-education.

These precautions are a minimum: 1. Whatever the conclusions on teaching rounds, the program set up by the patient's own physician with the house staff must never be interfered with. 2. Questions of diagnosis or therapy must never be discussed within earshot of the patient or the patient's relatives. 3. Requests for a consultation with the physician in charge of rounds must in general be treated with great circumspection. When a physician says, "I'll take care of the patient; you do the teaching," he describes a workable division of labor only when there is real closeness between the two in technique and philosophy of medicine. Successful collaboration of full-time and practicing teachers was recently achieved on the private medical services at Johns Hopkins, Baltimore (Earle Moore, M.D., chief of private services).

Recently several private hospitals have sought as service chiefs men with records of good basic research and public ward teaching. Now granted no one is so effective in teaching bedside medicine as the laboratory-trained man who is equally at home with ears, eyes, hands, and deeper emotional sensibilities and who keeps the laboratory in proper perspective, yet the career full-time teacher has little experience with the complex system of loyalties, favors, and indebtedness that determines the daily events in a private hospital. His eagerness to benefit teaching can, in changing the old order of things, seem to his staff destructive. Accustomed to moving between investigative centers, he is not used to the need of a practicing physician for stability. In turn, many a practicing physician who wants a first-rank teaching program has not seen one in operation since he was a student and does not know the price in his time, tact, and thought. If there are difficulties, he is more likely to cooperate with a chief who at some period has had the same difficulties.

If many attending physicians, with or without cause to the outward eye, grow jealous of the men to whom teaching is delegated, teaching by two way communication dies. I have seen teaching die through jealousy toward no one more formidable than able residents. Revival through exercise of the authority of the dean or department head just does not happen. Thus I think the best leadership is achieved by a man who has spent a year or so in his own private practice or assisting an older man in practice before devoting full time to teaching.

Dr. Bond's rounds continued to the autopsy table when indicated. Today they would include many other laboratories. However, the critically important "death meeting" (where the sequence of each fatal case is discussed by all concerned) and the clinical-pathological conference may be impeded when a private physician feels the honest recognition of an error before his juniors may be used against him professionally. Though many staff members may be glad to "fix honor or discredit" on their reputations under proper auspices, pathologists and others with special knowledge have found it wise to be gentler with clinical colleagues than is customary in some of our famous ward amphitheaters and have done so without sacrifice of truth. In some places, however, the fear or undue professional discredit has been backed by an occasional concrete incident. The attitudes of teaching cannot be forced on a staff. A realistic appraisal of the hospital and community atmosphere becomes essential. Will time and medical statesmanship help? If not, efforts toward a first-class program may prove wasted.

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[7] Bond, T.: The Utility of Clinical Lectures (1766), quoted in Flexner, A.: Medical Education in the United States and Canada, Bulletin 4, New York, The Carnegie Foundation for Advancement of Teaching, 1910, p. 4.

RESPONSIBILITY FOR PRIVATE PATIENTS ON ASSISTANT RESIDENCY LEVEL

In assistant residencies the young physician should begin to learn his more mature functions through supervised performance. These include explanations of therapy and prognosis, operative procedures, or special examinations and the giving of advice, encouragement, and when indicated, comfort, in addition to running the service smoothly. On a public ward service the role of assistant resident overlaps none other in these functions. House staff applicants often explain their preference for a public ward service by the phrase "greater chance for responsibility."

Thus a private service that hopes to attract applicants must provide some chance for action. If it does, I think a case can well be made for a private service's intrinsic superiority to a public ward at this stage of training. If not destructive in intensity, competitive practice can breed a matchless spirit of detailed attention to patients' needs. To be the junior teammate of a man versed in the humanities as well as skilled in the techniques of medicine can give lifelong illumination. When clinical responsibility is intelligently shared, the senior man wins a warm regard from his team that patients rarely fail to sense.

Unfortunately, some technically skilled physicians do not want a team; they want a retinue (patients rarely fail to sense this, either). These physicians do not want residents to order determinations of venous pressure, phenolsulfonephthalein tests, or other tests without specific authorization. To point out that on many private services responsibility is shared with benefits to the private physician, house officer, and patient is often useless. Some feel the patient's patronage depends on singlehanded direction of every detail; others have deeper private reasons. When a hospital's intern committee hears in the corridors, "We want fewer residents and more interns," chances for a good residency are slim.

Sometimes physicians will "delegate responsibility" if, and only if, the assistant resident has learned elaborate and rigid procedural patterns. Although a physician in a busy practice has often amassed considerable knowledge of techniques, when these become unchangeable then the service can only be said to "train" as animals are "trained." Its true educational function is valueless, save to those who have already learned the art of self-education.

Routines and rituals in medicine have a far deeper basis than utility as short cuts. The physician of today, with all the facilities of modern science at his disposal, is still like the temple physicians of the ancients in being asked to alter the course of many human maladies when he does not know how. Even psychoanalytic techniques, which have done so much to illuminate the role of symbolic ritual in human life, have themselves become so ritualized in certain circles that physicians endeavoring to apply scientific method in the further development have been excluded from psychoanalytic societies. Ritualistice aspects of care can be of value and are harmful today chiefly when dogged adherence blocks the adoption of more rational approach. On a private service there is opportunity to become aware of both the valuable and harmful sides of rigid procedures if the attending men have sufficient inward peace to be able to say "we don't know" with considerable frequency, to be able to discuss their own and alternative regimens without feeling their own functions as physicians are attacked. This inward security makes for a service discipline that, though apparently minimal in routines, is truly the most exacting of all. It is when they are headed by men of this type that I have seen private services clearly excel.

ADVANTAGES OF WARD BEDS FOR SENIOR RESIDENCY

The senior resident is ready to take charge of his own group of patients. In surgery this means operating, not only serving as first assistant. In other fields it means the responsibility for making major decisions and seeing that they get implemented.

For these, private patients pay their physicians. Here private beds cannot easily match the educational power of the well-run ward. Can a physician in practice delegate major clinical responsibility? Usually, no. Only under unusually favorable circumstances does the no become a weak yes. Most men who have themselves had the privileges of a real senior residency want them for their juniors and will work hard to set aside residency beds, though pressed in the early years of establishing practice.

Private patients who come to a hospital without a physician or are chosen by other criteria have sometimes been assigned to supervised senior residency care. Successful in some hospitals with senior residency tradition, this demands that the attending staff work as a team. The recent work of the Cornell University department of surgery (Frank Glenn, M.D., chief) is an important example at the New York Hospital. This service, despite difficulties, has had some success in senior residency training on private patients. The similarly organized program in medicine at Presbyterian Hospital, Chicago, that was previously reported [8] has had to be abandoned, in part through absence of staff support. The patient must always be told of the resident's role in the team. That the attending staff members feel free to do so is a good test of whether a hospital can be successful in giving a private patient senior residency care. Few indeed are the private services where the senior staff man feels he can step around the table to the first assistant position and permit the senior resident to perform the whole of a major operation. Almost no independently practicing surgeons feel free to do this. This is also true for private clinics operating wholly for profit. An intermediate policy obtains at one of the country's greatest private clinics, which, though dependent on patient fees, supports a large research and educational foundation. Here the staff tries to put its senior surgical fellows in charge during a part (not just the opening and closing) of every major procedure, in the hope that internal synthesis of the real but disjointed operative experience will lead to the same development of skill as the performance of whole operations. At the other limit stands a university-owned, nonprofit private hospital engaged in institutional practice, whose senior surgical resident functions as a full-fledged junior staff member.

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[8] Cohn, E. J.: Research in the Medical Sciences, in Medicine Today: March of Medicine, 1946, New York Academy of Medicine, Lectures to the Laity, no. 11, New York, Columbia University Press, 1947.

Wherever heard, the query, "Is the hospital practicing in competition with us?" needs the further question, "How serious is this competition?"

When many of a staff have not had senior residency experience, they have trouble in making a senior residency more than an extension of the assistant residency. They feel the senior residency is superfluous. They point to many excellent men who never had one. Twenty years ago when the public ward system was most in use, the "pyramidal" residency progression provided few senior residencies in our teaching hospitals. Many who wanted them and were qualified never achieved these posts.

With the addition of private services, a great quantitative gain can come. In essence, we may thus multiply our senior residencies up to the real clinical resources of any given institution. It is vitally important that in so doing we do not go beyond these clinical resources.

The habit of self-education is not the property of any single training method. Yet refresher courses can never replace the habitual reading, observation, and self-scrutiny forced on the senior resident who takes major responsibility under the supervision of conscientious teachers. In the thousand years between Galen and the Renaissance, medicine made almost no advances. Techniques could be taught to apprentices with assurance that they would be as much a part of accepted practice in the physician's old age as in his youth. Today's rapid strides in basic sciences [8] make medicine's chances of becoming static again slight, but make the chances of failure to advance greater for the individual. Very few persons who have been senior residents fail to continue the habit of keeping up with advances in knowledge.

In view of these situations, some public ward beds are essential. How many? The ratio of 1 to 7 (public ward to private) is a useful approximation for hospitals with a total of 250 or more beds. The basis for this estimate has been published elsewhere.[9] This minimal figure highlights the situation in some private institutions whose senior residency programs are functioning inadequately from the educational standpoint and indicates that some traditionally great teaching hospitals could lower their presently larger ratios with consequent redistribution of funds toward other teaching and research needs without destruction of senior residency standards.

The fewer the ward beds, the more urgent is administrative and geographical centralization by major clinical departments under supervision of the heads of the departments or men chosen for ability in senior residency teaching. One of the problems of the private service house officer is that he may be responsible to a dozen attending men for 25 beds distributed through every floor and wing of the hospital. Centralization of ward beds gives a hospital a chance to study what centralization moves may prove timesaving teaching aids for the private services. Some men as they grow older and gain influence in a hospital manage to be relieved of much teaching work while keeping ward beds under personal jurisdiction. If a department's handful of ward beds is distributed between a half a dozen such jurisdictions, the chances of good senior residencies are slight. Independent action can be defeated by the necessity for multiple daily arrangements.

When, by reason of staff or finances, a private hospital cannot afford a minimal-sized ward service, affiliation with a publicly supported hospital can fill the lack. Some public and private institutions have been able to pool their characteristic resources in a successful cooperative program from the intern through the senior resident levels instead of having multiple programs inadequate in one or more features and in mutual competition. The history of educational affiliation between public and private institutions is characterized by wide variation in local practice and by many variations over the years. In some areas medical education has prospered by reason of stability of these relations; in others it has suffered as greatly for lack of them. It takes firsthand familiarity to grasp why these affiliations have proved so difficult some places but so fruitful when once established in others. This familiarity is needed to develop a workable plan free of obvious pitfalls for a given institution. Representative of some important new types of affiliation are the taking over of all operations of the municipal hospital in Nashville, Tenn., by Vanderbilt University (J. B. Youmans, M.D., dean) at a time when many Vanderbilt University Hospital beds have been converted to private use; the assignment of certain senior surgical fellows at the Cleveland Clinic (S. O. Hoerr, M.D., in charge of surgical education) to the Cleveland City Hospital for senior ward work (F. Simeone, M.D., chief of surgery). The Michigan plan of rural hospital and university hospital affiliation should also be considered.[10]

Often a city hospital staff will ask a private hospital seeking affiliation, "What can you offer us?" This has to be answered for success. Often with a little exploration, it can be. Research facilities are an example. When Francis Peabody [11] set up an investigative group under private auspices, with research laboratories and a small research ward in the midst of a great city hospital, he made a great contribution to the training of practicing physicians as well as of research men.

The aim is not to make a research laboratory of the hospital. To have a research program going side-by-side with patient care can breed an atmosphere of diligence and inquiry in clinical work that is hard to achieve in formal instruction. The critique (not the techniques) of investigation can be infectious and of lifelong value in practice. Given an institution-wide understanding that "applied research" is not always the most productive of truly valuable results, the presence of the urgency of disease close to the scientist's laboratory is a valuable prophylaxis against the artificial atmosphere of some isolated research institutes. Few city hospitals can provide such facilities with their own resources.

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[9] Armstrong, S. H., Jr.: Private Patients in Medical Teaching, Tr. Am. Clin. & Climatol. A., vol. 63, 1951.

[10] Wilkinson, C. F.: The General Practitioner: How to Create More of Him for the Future Needs of the Country, J. A. M. A. **137**: 945-948 (July 10) 1948.

[11] Peabody, F. W.: The Physician and the Laboratory, in Doctor and Patient, New York, Macmillan and Company, 1930, chap. 3.

Thus the laboratories of the private hospital, often more extensive than those permitted by many municipal or county budgets, can truly implement the clinical care and basic medical facilities the latter provide. So also can its few ward beds, in giving special care when needed for special problems. Moreover, a private hospital, even in these tax-ridden days, has opportunities to seek financial support not always open to the municipal hospital directly and which are greatly strengthened by the latter's reservoir of clinical material. If, however, research is often used to enhance standing in competitive practice, resultant feeling may hurt the program. There may come a belief that the laboratory advantages of services staffed by a private teaching hospital will put other city hospital services in an unfavorable light or compete for staff with the research programs already set up within the city hospital. Any or all of these feelings, if sufficiently intense, can block fruitful collaboration. If the men on the affiliated services behave in a friendly and appreciative fashion and invite collaboration with other services when feasible, the adverse feelings we have described may dwindle to insignificance over a few years.

STAFFING THE PRIVATE TEACHING HOSPITAL

Given a city hospital affiliation for the senior residency, the core of a private hospital's teaching is still its own private services. A first-class service chief and house staff can maintain a high teaching standard on a public ward, even if some of the attending men give only minimum service required for patient care. For a private service, an enthusiastic chief and a keen house staff are not enough. Teaching enthusiasm and ability are needed in each private attending man.

When a service falls down in teaching performance, word goes from intern to prospective intern and from resident to prospect resident. With today's excess of house staff positions over candidates, a long time can be needed to reverse the trend of the service's drawing power. Though scarcely in a position to determine their curriculum, students and house staff are rarely deceived about the sincerity, interest, and intellectual integrity of their teachers.

So this question comes up: "Does a man uninterested in or incapable of teaching have a place on a private teaching service?" If staff selection is based on appraisal of long-term teaching promise in addition to usual bases of professional skill and loyalty, a hospital will face this question rarely.

Of great value in selection is a research program, backed by locally administered part-time fellowships. A private hospital with a clinical and scientific staff, chosen with consideration of cooperative work, has real investigative as well as educational value. Although few hospitals can afford research departments in all preclinical or clinical fields, many can afford one department with a creative scholar in charge, e. g., in pathology. The situation of the Presbyterian Hospital in Chicago is of interest (G. M. Hass, M.D., chief of pathology, D. A. MacFadyen, M.D., chief of biochemistry, and J. A. Campbell, M.D., chief of medicine). Having recently set up fundamental investigative laboratories on a scale rare among private hospitals with few public ward beds, it now faces the problem of comparable clinical facilities to give maximum use of its superb scientific plant in training practicing doctors and investigators. Though it is obvious that certain types of research are out of place at a private hospital, one of the greatest clinical investigators of our age, Sigmund Freud, worked almost exclusively with private patients. In investigative work, private hospitals face problems that a hospital with a public ward service under central direction does not. These arise from both the necessary admitting practices of the private hospital and from the occasional divergences in considerations of patient care from the standpoint of the private physician and scientific critique from the standpoint of the clinical investigator. With a staff united in purpose they can often be solved.

Local management of part-time fellowships permits local analysis of misuse that is not always possible with national full-time appointments. If a man expands his practice to the neglect of a paid part-time opportunity for teaching or research, this can be observed better with local administration than by a conference 5 to 10 years later to wrestle with the inadequate teaching function of his many beds. Most existing fellowships on a national or university level (such as the fellowships under the National Research Council, the U. S. Public Health Service, the Rockefeller Foundation, and the scholarships of the John and Mary Markle Foundation) are aimed at the development of the full-time teacher and investigator, not the teaching practitioner.

It is not easy to select men for teaching and research. One can be fooled by early adherence to the outward precepts of medical scholarship, which can cover a pervading paralysis of independent thought or action. On the other hand, when an able man (whose thirties are devoted to the demands of a young family and a confiscatory income tax rate) turns in his forties to the scholarly side of medicine, he often does more for teaching than the man whose encyclopedic knowledge has been acquired largely from books. The problem is finding this man in his burdened years—in differentiating him from the man whose practice, however large, is never quite large enough.

I have seen splendid teachers in 50-bed rural hospitals as well as in great medical centers. Nearly every man is a teacher of some effectiveness by the end of his house staff service. Then suppose he becomes an assistant in a very busy office and at the same time is given a dispensary morning assignment of students. He begins with enthusiasm. On busy days, he arrives at his private office late, sometimes without lunch, to find a full waiting room and his seniors or associate asking where he has been. Then he leaves this office late, misses dinner in handling the evening house calls, and comes home late to find his wife with the same question. Five years of this can put him in a bad teaching position unless his senior partners make certain that he has time to teach, read, and do some independent work. They are as responsible as he for his own development and for the teaching program of the hospital.

Whether through lack of time or of inclination, when the young man fails to study as he sees patients, he cannot keep up with advances in medicine; clinically immature students sometimes find themselves better prepared in the theory of medicine. It takes a lot of demonstrable practical sagacity to retain the respect of the students in this situation.

If several such young men become valuable private office assistants for capable senior teachers who try to secure permanent staff appointments for them, the finest of laboratories, full-time men, or research funds cannot offset the damage to the teaching program.

A lay board of managers or the administration of affiliated universities can help in setting standards, but within limitations. The lay board members of private hospitals are open to private persuasion by staff physicians who care for them and feel a serious conflict of loyalties in making decisions against the wishes of their own physicians. The occasional lay board member who makes an independent study of the processes of medical education can be of great service to a teaching program. This takes both devotion to duty and time, which is as valuable to business men as to physicians. Teaching is a collaborative job rarely fruitfully forced from the "outside," as by administration, and when it is forced, the relationship is unstable. Even when universities own hospitals, this is not always a sure safeguard against either exploitation or stagnation.

A private hospital should be prepared to provide beds for moderate-sized practices of some of an affiliated university's key investigative clinicians. (The hospital staff must insist on proper qualification for practice. More than one able scientist with a degree of doctor of medicine has been tempted to enter a clinical field without adequate training.) Because there exist rare instances of failure of function of whole clinical departments when one or two salaried staff members exploit practice privileges in competition with private physicians, to the neglect of teaching and research, it is essential to define borderlines between legitimate use and exploitation that will be valid locally.

Today many a full-time teacher in the old-fashioned sense is forced by family pressure to seek a source of additional income beyond his university salary. Salaries, particularly at the associate professor level, were barely adequate a decade ago and have not increased commensurately with taxes and inflation. The simplest administrative safeguard against exploitation of practice privileges is the setting of a maximum amount that a man can earn and the insistence on periodic reports. Any flagrant abuse is usually obvious.

Hospital staffs, which are self-perpetuating by promotion of faithful assistants, do not always welcome independent appointments by university authorities. If the staff depends on independent practice, behind such resentment is fear that a new man appointed for educational reasons (particularly if appointed at a top level) will use his teaching or research prominence to take over part of existing staff practices. It is important that full-time educators act in such a way as to make these fears groundless.

If a university depends completely on appointments of persons emerging from an entrenched clinical faculty (whether in private or institutional practice), the danger of self-perpetuation into mediocrity remains. The history of medical education is marked by many a battle between a university aiming at top educational standards and a staff aiming at preservation of seniority privileges. For every stalemate many superb collaborations have emerged. If a hospital staff is able to take the responsibility of examining its own appointments in the light of teaching and research, a university is wise to make clear its educational criteria, examine carefully and independently the men proposed, appoint those who fulfill them, and reject those who do not, with explicit statement of reasons, and go no further. Indeed, a few private hospitals with loose university affiliations have implemented this ideal by appointment of committees outside their own staff, including representatives of the basic sciences, to select key staff replacements. This is done at the Massachusetts General Hospital, Boston, Dean Clark, M.D., medical director.

When a university gives an initial three year appointment, it usually reviews the record before the end of that time. In many private hospitals the usual one year staff appointment given by the lay board is subject to renewal year after year without scheduled academic review. When private hospitals and universities affiliate, sometimes the university mistakenly takes the hospital's one year to mean a single year and therefore waives its own reviewing function. It is critically important for the private teaching hospital to inform every new man that initial staff appointments and academic rank are subject to joint review at stated periods and are mutually dependent.

If a university finds a hospital staff as a unit cannot meet its standards, often a very satisfactory distribution of good teaching services can be achieved by supporting individual services in several hospitals (good examples of this can be seen in certain private hospital services affiliated with Northwestern University in Chicago). Cumbersome as this arrangement may sound administratively, when the university influences only those services interested in its work and takes no part in the other services of a hospital, friction in hospital-university relations is often minimal. When a university takes over the function of supplying a house staff to approved services in several hospitals, it moves by hospital default into a central role in postgraduate medical education in addition to its traditional undergraduate role.

The final responsibility, however, for use of private beds in medical education belongs mainly to the private physicians. They become associated with teaching programs because of teaching interests and they seek to perpetuate their interest by staff recruitment. This is facilitated in communities where there are enough private beds; physicians without intense interest in teaching can voluntarily become associated with other hospitals without loss of efficiency in service to patients.

SUMMARY AND CONCLUSIONS

For teaching purposes it makes no difference whether the patients are in private rooms with baths or in 20 bed wards or whether their hospital charges and professional fees are paid by private insurance, the patients themselves, or public authorities if the following criteria are met:

1. The patients present the range of serious disease the young physician will meet later on. 2. The house staff and students can follow the course of the patients after discharge. 3. The staff members love to teach, realize that teaching takes valuable time and do not begrudge it, and cherish the continually broadening viewpoint arising from day after day exchange with younger colleagues. 4. The staff members are secure enough in relationships with patients to share responsibility with junior colleagues. 5. The staff members are sensitive to the difference between mere training and true education. Education presupposes training in the accepted concepts and procedures of the day and goes further in encouraging the student to explore and to face revisions with equanimity.

At the end of hospital training, when a real degree of skill and experience has been achieved, the senior resident is ready to take charge of his own group of patients in the teaching hospital. (In the surgical specialties this includes actual operating not merely serving as first assistant, and in the medical specialties the major diagnostic and therapeutic decisions.) For these functions, private patients pay their private physicians not hospital residents. Here private services cannot completely supplant the public wards.

A few private services over the country satisfy these criteria. Their teaching performance is attested by their popularity in attracting house staffs. Many do not. However good their educational programs look on paper, a few hours in the house staff dining room, a few days visiting the actual teaching exercises, and some hours on rounds with the attending staff disclose problems of patient population and in follow-up continuity, of attending staff selection and in provision of proper facilities for their practice and research to implement teaching, and of the necessity for a minimal ward service under central departmental control for senior residency training.

Most difficult of all are problems of physician-physician relationships. Their solution is critical to the success of the private service in the sharing and delegation of clinical responsibility essential for development of clinical maturity. The complexity of these difficulties leads me to feel that the success of the public ward system in teaching performance will not be matched by all private services in the near future.

Much of the working out of problems will depend on local conditions, such as whether the private hospital staff is open or closed, whether the supply of private beds meets demand, whether city hospitals welcome close teaching affiliations in a senior residency program, and whether private hospitals can give the city hospitals equal advantages in such an arrangement.

Success will depend on the persistence of those who believe in the role of private institutions in medical education. An old-fashioned public ward service can work well with a keenly interested chief and a handful of capable attending men as a faculty. Its capacity to give independent action to its house staff can offset many indifferent teachers. A private service can work well only if all persons involved understand the goal, want it, and will work for it.

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FATAL STAPHYLOCOCCUS ENTERITIS FOLLOWING PENICILLIN AND STREPTOMYCIN THERAPY

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Fatal Staphylococcus enteritis following antibiotic therapy is now a familiar entity,[1] but its clinical picture and its exact relation to the several antibiotics remain to be clarified. Three cases of this entity were autopsied and are reported, with emphasis on the following aspects: 1. The clinical picture of this complication that can appear very soon after antibiotics are given and that may follow a fulminating course demands prompt therapeutic action. 2. All three of these patients received only penicillin and dihydrostreptomycin intramuscularly, in contrast to reports in the literature [1] in which aureomycin and oxytetracycline (Terramycin) administered orally have generally been the offending agents. 3. Some observations on pathogenesis are discussed.

Also described are two cured patients in whom the clinical picture was identical to that of the patients who died. Staphylococci were not cultured from the stools in these patients; but, in each case, throat and stool cultures showed abnormal flora. The concept that this complication arises from a suppression of the normal intestinal flora, which then permits the ever-present staphylococci to thrive to a pathogenic degree, seems oversimplified.

REPORT OF CASES

Case 1.—A 22-year-old white woman was hospitalized for exodontia and died six days later from fulminating enteritis. During the summer of 1952 this patient had been thoroughly studied because of a persistent mildly febrile illness, with no intestinal symptoms and with negative stool culture. The illness was considered probably to be rheumatic fever. The eventual autopsy did not yield any explanation of this illness.

The woman's dental condition was poor. After she seemed almost recovered from the mild febrile illness, she was admitted to the hospital for exodontia that was performed uneventfully on Nov. 28, 1952. Procaine penicillin G, 400,000 units, and dihydrostreptomycin, 1 gm., were given intramuscularly twice daily for five days, from Nov. 25 through

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[1] (*a*) Jackson, G. G., and others: Terramycin Therapy of Pneumonia: Clinical and Bacteriological Studies in 91 Cases, Ann. Int. Med. **35**: 1175 (Dec.) 1951. Womack, C. R., and others: Terramycin Therapy of Urinary Tract Infections, A. M. A. Arch. Int. Med. **89**: 240 (Feb.) 1952. (*b*) Dearing, W. H., and Heilman, F. R.: Micrococcic (Staphylococcic) Enteritis as a Complication of Antibiotic Therapy: Its Response to Erythromycin, Proc. Staff Meet., Mayo Clin. **28**: 121 (March 11) 1953.

Nov. 29, 1952, as prophylaxis. On Nov. 30, the patient was discharged from the hospital feeling well. She was afebrile. On the day after discharge, nausea, occasional vomiting, malaise, periumbilical discomfort, and diarrhea, with two to three watery stools per day, developed. Three days after discharge, her temperature had risen to 104 F, and she was readmitted to the hospital. Her rectal temperature on admission was 106 F; pulse, 130 per minute; and blood pressure, 90/60 mm. Hg. The patient was lethargic, had constant liquid stools, and soon became semicomatose. The hematocrit was 44%, and the white blood cell count was 6,100 per cubic millimeter, with polymorphonuclears, 85%, lymphocytes, 9%, monocytes, 3%, and eosinophils, 3%. Urinalysis showed specific gravity, 1.020; albumin, 3 plus; no sugar; and coarsely granular casts, with a few red and white blood cells in the sediment. A blood culture was sterile. Nose and throat cultures on Dec. 3, 1952, yielded 4 plus growth of hemolytic Staphylococcus aureus.

The patient was given fluids intravenously, two intramuscular injections of procaine penicillin G, 400,000 units, and dihydrostreptomycin, 1 gm., and an intramuscular injection of cortisone. She rapidly grew worse. Six hours after admission, her blood pressure had dropped to 50/26 mm. Hg, and 12 hours after admission she died.

At autopsy, two and one-half hours after death, the gastrointestinal tract was contracted and devoid of normal content. The lumen of the upper small intestine, particularly, contained an elastic but friable semitranslucent mucoid material that formed a cast of the lumen and rugal folds. This material was present in the stomach, where it formed an incomplete cast. The colon was empty, and the mucous membrane was moist and hyperemic, but not ulcerated. The mucous membrane of the stomach, duodenum, and ileum was swollen and congested and showed small points of superficial erosion. Other body viscera showed congestion but no significant pathological changes.

Postmortem bacteriological study showed that the blood in the heart was sterile. The nasal sinuses contained proteus vulgaris and nonhemolytic streptococci. The small intestine yielded a pure culture of hemolytic Staph. aureus (coagulase positive), but no gram negative organisms were present. The colon yielded a pure culture of hemolytic Staph. aureus (coagulase positive). Microscopic examination of the stomach and small intestine, particularly, and, to a lesser degree, of the colon showed an intense congestion of the mucosa, with edema and inflammatory infiltration. The inflammatory reaction consisted of polymorphonuclear neutrophils, plasma cells, lymphocytes, and histiocytes. In some areas, these extended through the muscularis. In many places, there was superficial loss of surface epithelium. A marked proliferative mitotic activity of the glandular epithelium was present. The luminal cast was composed of interlacing, pink-staining strands and a finely granular ground substance that contained cellular debris and a moderate leukocytic infiltration throughout. Periodic acid and aniline water (Gram-Weigert) stains indicated that the cast was composed mainly of fibrin with a small amount of mucus enmeshed. The most striking feature was the presence of numerous colonies of staphylococci.

Case 2.—A 52-year-old white man had a subtotal gastrectomy on Jan. 15, 1953, because of a benign gastric ulcer. The patient was in good general health. His history, physical examination, and routine blood and urine studies indicated nothing abnormal. His blood pressure on admission was 140/94 mm. Hg. A gastric analysis showed 7 units of free acid before and 39 units after histamine was administered. Because of its high position on the lesser curvature, the ulcer was left in situ (after biopsies were reported benign), while two-thirds of the stomach was resected. The operation was uneventful; later autopsy confirmed the fact that no surgical complications had arisen.

On the first postoperative day, the patient received 400,000 units of procaine penicillin G and 1 gm. of dihydrostreptomycin intramuscularly at 8:00 a. m. and no other antibiotics on this day. When it was discovered that this man had a history of sensitivity to penicillin, this drug was not given again after the initial dose; thereafter, he received streptomycin alone. During the first postoperative day, his rectal temperature was between 100 and 101 F. His condition was satisfactory. On the second postoperative day at 8:00 a. m., the temperature was 101.4 F, and the pulse rate showed a sudden rise to 120 per minute; this was just 24 hours after the first injection of penicillin and dihydrostreptomycin. The second injection, of streptomycin alone, was not received until 1:00 p. m. on the second postoperative day. During this day, diarrhea began, with eight copious liquid stools in the 24 hour period. At 4:00 p. m., the rectal temperature was 103.4 F. The patient looked and acted well and stated that he felt fine. The lungs were clear to physical examination. On this day, the man received 1 gm. of streptomycin intramuscularly at 1:00 p. m. and at 9:00 p. m.

On the third postoperative day, the patient's temperature was between 105 and 105.8 F. In the morning, it was noted that he still did not appear very sick. The diarrhea continued with seven copious liquid stools. The chest was normal. The white blood cell count was 3,200 per cubic millimeter, with 89% polymorphonuclears. Blood culture made on this day was normal. Stool culture showed Esch. coli, nonhemolytic streptococci, but no enteric pathogens; it had been seeded on only the usual enteric medium, not including a blood agar plate. Streptomycin, 1 gm. intramuscularly, was given at 9:00 a. m. and 9:00 p. m. In the evening of the third postoperative day, the patient began to vomit, and it was evident that he was critically ill. On the assumption that he had sepsis of undetermined type, aureomycin was given intravenously. The patient received 5.5 gm. of aureomycin intravenously during the next 60 hours, with no evident change in his condition. On the next day, the temperature ranged to 103.6 F, and the diarrhea continued with six watery stools, a total volume of approximately 3,000 cc. The blood pressure fell as low as 60/40 mm. Hg during part of this day. The man received 1 gm. of streptomycin intramuscularly at 9:00 a. m., and intravenous administration of aureomycin was continued.

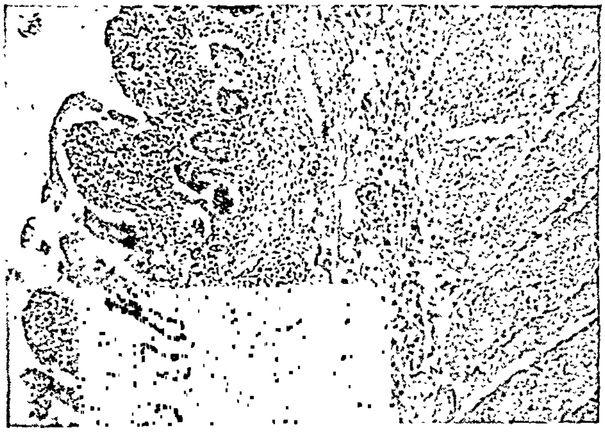
Fig. 1.—Photomicrograph showing infiltration and disruption of intestinal mucosa (case 2).

On the fifth postoperative day, the rectal temperature reached 103.6 F. The diarrhea ceased. The patient was critically ill, and his blood pressure remained at shock levels during most of this day. The white blood cell count was 13,000 per cubic millimeter, with 95% polymorphonuclears. Nonprotein nitrogen determination was 105 mg. per 100 cc. The patient's urinary output was 1,850 cc. on the first, probably normal (bathroom privileges) on the second, not known on the third, and reduced to 40 cc. and 75 cc., respectively, on the fourth and fifth postoperative days. This oliguria was presumably due, at least in part, to hypotension. A moderate deficit of sodium was evident, but deranged fluid and electrolyte balance did not seem severe enough to account for any important part of the patient's illness. On the fifth day after surgery, the patient received 1 gm. of streptomycin intramuscularly at 9:30 a. m., and intravenous administration of aureomycin was continued. The patient died at 4:00 a. m. on the sixth postoperative day.

At autopsy, two hours after death, the recent subtotal gastrectomy wounds were intact, without leakage, and with an adequate gastroenterostomy stoma. The peritoneal reaction was slight and consisted of delicate fibrinous adhesions without purulent exudate. There remained a 2 cm. indurated ulcer on the lesser curvature, 1 cm. from the cardia. The margins were sharp and not thickened. The duodenal limb and the entire small intestine were distended. The wall was thickened and edematous. The intestine contained light yellow, semifluid, mucoid material, and the mucous membranes were congested, edematous, and hemorrhagic. No blood was present in the intestinal lumen. The colon showed a similar, though less marked, reaction. No ulcerations or any formed fecal material were present. Other organs were moderately congested, but without other contributory pathological changes.

Postmortem bacteriological study showed that the blood in the heart was sterile. In the small intestine, hemolytic Staph. aureus (coagulase positive) was the predominating organism. Nonhemolytic Streptococcus was present, but there were no organisms of the colon group. Organisms in the colon were similar to those in the small intestine. On microscopic examination, the intestinal mucosa was congested, edematous, and diffusely infiltrated with plasma cells, lymphocytes, and a few polymorphonuclear cells in focal areas. The glandular epithelium was degenerated in isolated glands but, for the most part, showed proliferative mitotic activity. The histology of the small intestine is shown in figures 1 and 2. It was entirely similar in the other two autopsies. The stomach and colon showed similar though less intense changes. The other organs showed acute inflammatory bronchitis but no other significant abnormality.

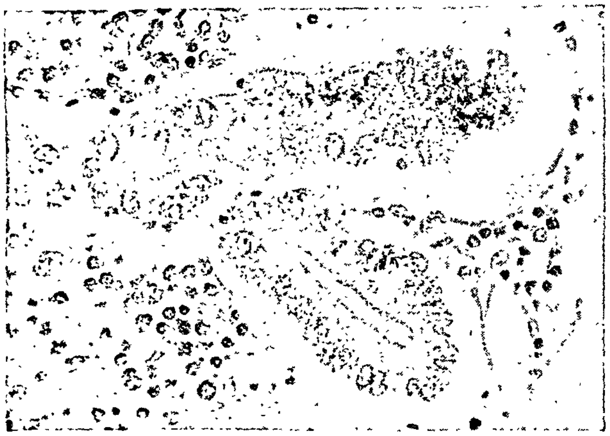

Fig. 2.—Photomicrograph showing proliferative activity of glandular epithelium (case 2).

Case 3.—A 61-year-old white man was admitted to the hospital on Jan. 23, 1953, for revision of an ileostomy. He had had chronic idiopathic ulcerative colitis of 18 months' known duration. Nine months before admission, an ileostomy was performed at another hospital because of profuse rectal bleeding. His general condition had improved greatly after this operation, with a weight increase from 110 to 138 lb. (49.9 to 62.6 kg.). The ileostomy had, however, been placed so near the iliac spine that no apparatus could be made to fit it. There was constant leakage and soiling, which was particularly bothersome at night. The patient had had a coronary occlusion two years before admission and anginal symptoms for five years. He was being maintained on digitalis, but there had been no frank episode of congestive failure. Although his cardiac condition clearly increased the risk of surgery, his situation had become intolerable to him, and revision of the ileostomy was considered necessary. Because of marked pathological changes in the colon, with pseudopolyposis, it was decided to perform a partial colectomy at the time of this operation. These procedures were carried out on Jan. 27, 1953.

On the day before operation, the patient received 400,000 units of procaine penicillin G and 1 gm. of dihydrostreptomycin intramuscularly in the morning and evening. On the day of operation, he received one such injection, and 1 gm. of streptomycin and 500,000 units of penicillin were placed in the peritoneal cavity. For the next eight days (through the eighth postoperative day), the man received two intramuscular injections daily of 400,000 units of procaine penicillin G and 1 gm. of dihydrostreptomycin. On the eighth, ninth, and tenth postoperative days (beginning after the onset of small bowel distention and ileostomy diarrhea), he received a total of 1.75 gm. of oxytetracycline orally. On the 11th and 12th days after surgery, he received no antibiotics. On the 13th postoperative day, he received one intramuscular injection of 300,000 units of procaine penicillin G.

The patient appeared to be doing well for three days after surgery. On the fourth postoperative day, he vomited several times, and there was moderate abdominal distention. During the next two days, symptoms and signs developed that were thought to be indicative of small bowel obstruction, with distended loops of small bowel visible roentgenologically. A Miller-Abbott tube was passed satisfactorily with free drainage, but it was noted that distended loops of small bowel were still present proximal to the tip of the tube, indicating paralytic ileus rather than mechanical obstruction. Copious green liquid drainage from the ileostomy was first noted on the seventh postoperative day. It continued copiously until death, or shortly before. Ileostomy drainage on the 11th postoperative day was 6,450 cc. On the 12th postoperative day, a physician recorded that there was "frank blood . . . and shaggy exudate" draining from the ileostomy. Fever was not present until the 12th postoperative day when the rectal temperature rose to 102.8 F and to 105 F the next day. Stool culture (from the ileostomy) on the 13th postoperative day showed 2 plus growth of hemolytic Staph. aureus (coagulase positive).

The patient's downward course was accompanied by progressive nitrogen retention and by moderate deficits in electrolyte concentrations. On the day before death, the blood nonprotein nitrogen was 68 mg. per 100 cc.; serum sodium, 126.5 mEq. per liter; serum potassium, 5.5 mEq. per liter; chloride, 83 mEq. per liter; serum albumin, 3.9 gm. per 100 cc.; and globulin, 3 gm. per 100 cc. On the 11th postoperative day, the blood pressure dropped to 80/70 mm. Hg. It was maintained at somewhat higher levels thereafter with the aid of vasopressor drugs; but for the last three days of illness, there was a state of semishock with marked oliguria. The patient died on the 14th postoperative day.

At autopsy, performed three hours after death, the operative wounds (revision of ileostomy and right hemicolectomy) were healing and without inflammatory reaction. The heart weighed 490 gm., and there was left ventricular hypertrophy. An old 7 cm. fibrous scar on the anterior aspect of the myocardium largely replaced the musculature. Posteriorly, a recent yellow-red infraction extending 3 cm. was seen. The left anterior descending coronary artery showed an old recanalized occlusion while the left circumflex artery, 3 cm. from the bifurcation, contained a recent thrombus. In the gastrointestinal tract, the esophagus and stomach were normal. The mucosa of the duodenum, jejunum, and ileum was edematous and congested. Petechial hemorrhages were present in the mucosa, diminishing in frequency in the lower intestine. The intestinal content was yellowish-brown and mucopurulent. In the portion of the colon and rectum remaining, the wall was thickened and the mucosa scarred, edematous, hemorrhagic, and covered with a mucoid material typical of chronic ulcerative colitis. Other body viscera were noncontributory. The kidneys weighed

300 gm. and had a smooth capsule and distinct corticomedullary markings.

Postmortem bacteriological study showed that the blood in the heart was sterile. In the ileum, hemolytic Staph. aureus (coagulase positive) was the predominating organism; there was a moderate growth of yeast cells and an occasional colony of Esch. coli. The colon yielded hemolytic streptococci (coagulase positive) but no gram negative organisms. Microscopic study of the ileum showed edema, congestion, and inflammatory infiltration with lymphocytes, plasma cells, and, in focal areas, polymorphonuclear cells. There was epithelial proliferation with mitotic activity. In the colon, fibrous mucosal and submucosal scarring was present together with moderate inflammatory reaction. The heart sections revealed acute and chronic myocardial damage. A peribronchial alveolar inflammatory infiltration was present.

Case 4.—Shortly after the patient in case 2 died, an identical condition developed in another patient, a 61-year-old man who also had just had a subtotal gastrectomy. The operation had been uneventful. Beginning on the day of operation, the patient received 400,000 units of procaine penicillin G and 1 gm. of dihydrostreptomycin intramuscularly twice daily. On the next day, the patient had a rectal temperature of 102 F, which rose to 103.8 F on the second and third postoperative days. On the third postoperative day, diarrhea commenced with six to eight liquid stools per day for the next three days. Meanwhile, the patient looked and felt surprisingly well, as had been true also of the patient in case 2. With fever of 103.8 F in a postoperative patient, one is ordinarily inclined to begin, or to increase, antibiotic therapy. In view of recent experience, however, all antibiotics were discontinued early in the fourth postoperative day. The striking cessation of fever and diarrhea that followed is shown in figure 3. The patient thereafter recovered uneventfully.

Stool cultures (including blood agar plates in each instance) were performed from the second through the seventh and on the tenth day after the beginning of diarrhea. At no time did they show staphylococci. Esch. coli was present in all specimens. There was an abnormally abundant growth of enterococci beginning on the fifth day, and this was still present on the tenth day after the beginning of diarrhea (the latter culture was grown nine days after antibiotics were discontinued and six days after diarrhea had ceased). Cultures from the throat and sputum on the fifth postoperative day showed 2+ and 4+ growths of Staph. aureus, respectively.

Case 5.—A 61-year-old white man had an uneventful herniorrhaphy on March 31, 1953. Subsequently, a barium enema was performed because of a history of lower abdominal symptoms. The enema led to the discovery of what proved to be a subacute appendiceal abscess. On operation on April 10, 1953, it was necessary to do a partial colectomy to remove the inflammatory mass. In the 24 hours following this operation, the patient received two intravenous injections of 0.5 gm. of oxytetracycline. He received no other antibiotics at any time. None were given at the time of the previous herniorrhaphy.

On the second postoperative day (24 to 36 hours after the beginning of administration of oxytetracycline), the patient's temperature rose to 104.6 F rectally, and watery diarrhea, 11 stools with a total volume of approximately 3,000 cc., began. Peristalsis was hypoactive, and there was moderate abdominal distention despite the fact that a Miller-Abbott tube had been inserted immediately after operation. The white blood cell count on the first postoperative day was 14,200 per cubic millimeter, with 84% polymorphonuclears. Blood culture taken at the peak of fever was normal.

Treatment consisted of discontinuing the antibiotic and of close attention to maintenance of fluid and electrolyte balance. Eight hours later, the man's temperature had dropped to normal, and it remained so. Diarrhea lessened on the third postoperative day, although it did not cease until the sixth postoperative day. The stool volumes on the third, fourth, and fifth postoperative days were 1,700, 805, and 935 cc., respectively. During these days, the patient made steady improvement but was still fairly sick as indicated by weakness, nausea, hypoperistalsis, and mild abdominal distention despite the Miller-Abbott tube. Thereafter, recovery was uneventful.

The patient's blood pressure was well maintained throughout. There was no azotemia; the serum nonprotein nitrogen was 40 mg. per 100 cc. on the third and 26 mg. per 100 cc. on the seventh postoperative day. Urinalyses, however, on the third and fourth postoperative days showed 4 plus albuminuria, with occasional white and red blood cells in the sediment but no casts. Urinalyses before operation and on the sixth and seventh postoperative days were entirely normal. Cultures of the pharynx and the stools (including blood agar plates) were taken on the evening of the second postoperative day (48 hours after the first of the two doses of oxytetracycline). The pharynx at this time showed a pure growth of Proteus vulgaris; the stool showed almost pure growth of the same organism, with no Esch. coli present. Proteus vulgaris from the pharynx was sensitive to chloramphenicol (Chloromycetin) and slightly so to dihydrostreptomycin. It was not sensitive to oxytetracycline or aureomycin. Pharyngeal cultures on the fourth and seventh postoperative days still showed pure growth of Proteus vulgaris. Stool cultures showed pure growths of Proteus vulgaris on the second, third, and fourth postoperative days with some Esch. coli present for the first time on the sixth postoperative day. Stool cultures on the 11th postoperative day still showed abundant Proteus vulgaris together with Esch. coli. No staphylococci were found at any time.

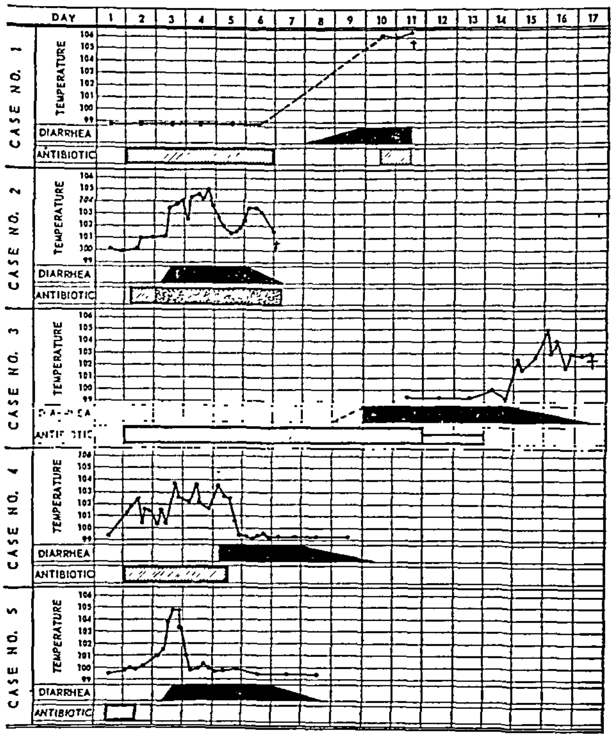

Fig. 3.—Postoperative courses of patients in case reports: cross-hatched rectangles indicate duration of therapy with penicillin and dihydrostreptomycin; stippled rectangles, dihydrostreptomycin only; and white rectangles, oxytetracycline (Terramycin) only. Solid areas indicate presence of diarrhea.

The illness of these two patients (in cases 4 and 5) appeared to be clinically identical with that seen in those that at autopsy were found to have Staphylococcus enteritis. In both instances, throat and stool cultures showed an abnormal flora, although staphylococci were found only in the throat cultures in case 4 and not at all in case 5. Hence it is considered that the illness of these two patients was due to toxins produced by intestinal bacteria under the influence of antibiotics.

COMMENT

Autopsy in each of the patients who died showed severe enteritis as the cause of death, with abundant and pure growth of hemolytic Staph. aureus in postmortem cultures from the bowel. All patients except one received combined procaine penicillin G and dihydrostreptomycin intramuscularly.

Fever and diarrhea were the cardinal clinical features at the onset of this condition. Two patients appeared strikingly well, clinically, during the first few days of this fatal complication, even though there was fever of 102 to 104 F and death was to ensue in four days. Shock, oliguria, and azotemia were prominent features in the later course in those patients who died. Diarrhea or fever began in these five cases on the second, third, seventh, and ninth days, respectively, after the beginning of administration of the antibiotic (fig. 3), and death occurred on the fourth, fifth, and eighth days after the onset of fever or diarrhea. Death appears to have been due to toxemia, not septicemia, since blood cultures during life and at post mortem were normal and since there was no evidence of pyemia.

The treatment of this condition includes the recognition of the complication as a possibility when unexplained fever or diarrhea develops in any patient receiving antibiotics. Recognition should be followed by prompt withdrawal of the antibiotics and, perhaps, by the use of an antibiotic to which most staphylococci in the patient's geographical area are known to be sensitive; for example, the use of erythromycin has recently been reported.[1b] In two of the present three cases, the Staphylococcus grown post mortem was not sensitive to penicillin, streptomycin, aureomycin, or oxytetracycline but was sensitive to chloramphenicol and magnamycin. The third organism was not tested. Because of the fulminating character of the illness, therapy should not be deferred until the results of cultures or sensitivity tests are known. Clinical recognition may be delayed by the fact that stool cultures during the first days of diarrhea may show normal flora and no staphylococci. This fact is supported by a sixth patient, seen more recently, in whom stool culture on the second day of diarrhea showed normal flora and no staphylococci. Twenty-four hours later, a stool culture showed pure growth of hemolytic Staph. aureus, with no Esch. coli present. The patient recovered. The dramatic termination of fever in cases 4 and 5 on discontinuance of the antibiotics suggests the advisability of a brief trial of this measure alone, if the patient is not in critical condition. The associated disturbance in fluid and electrolyte balance demands prompt and careful attention.

Simple suppression of intestinal flora permitting overgrowth of the Staphylococcus or possibly of other organisms does not seem sufficient explanation of this complication. Other factors might include the introduction of a particular strain of staphylococci or a direct stimulation of toxin production by staphylococci under the influence of antibiotics. The onset of fever and diarrhea as early as 24 hours after antibiotics were first given strongly suggests a stimulating action by these drugs rather than an effect secondary to suppression of the normal intestinal flora. This view is strengthened by the fact that in all cases the drugs were given parenterally only and by the fact that early cultures failed to show staphylococci. That antibiotics can stimulate growth of bacteria in vitro has been demonstrated.[2] Chronic upper respiratory infection, achlorhydria, and cessation of food intake are other factors that might influence changes in intestinal flora. Their role in these cannot be determined.

This condition should be considered not as Staphylococcus enteritis, but as toxicity from disturbed intestinal ecology. It should be emphasized that its manifestations include not only enteritis but systemic toxic effects such as hypotension and azotemia and also that the exact role of the Staphylococcus in this disturbance is not yet clear.

SUMMARY AND CONCLUSIONS

Three autopsied cases of fatal Staphylococcus enteritis occurring after prophylactic use of penicillin and dihydrostreptomycin are presented, together with two cases in which prompt discontinuance of antibiotics was followed by recovery from what appeared to be an identical condition.

The concept that this complication is due to suppression of normal intestinal flora permitting pathogenic overgrowth of intestinal staphylococci appears to be oversimplified. A direct stimulation of the Staphylococcus by antibiotics must be considered. Fever or diarrhea appearing in a patient receiving antibiotics should immediately suggest this complication. Prompt discontinuance of antibiotics and attention to fluid and electrolyte balance are the primary therapeutic measures.

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[2] Prissick, F. H.: Antibiotic-Resistant Staphylococci and Related Infections, Am. J. M. Sc. 225: 299 (March) 1953.

Penicillin.—In the early days of penicillin the manufactured product was very impure and sometimes gave considerable pain on injection. To counteract this, procaine was often mixed with the penicillin solution in the syringes. Sometimes, it was noticed that a precipitate formed, but this did not affect the potency of the penicillin.

Later it was found that procaine formed with penicillin a salt that was only slightly soluble in water and, when introduced into the body as a suspension, was slowly dissociated. As with the oil-wax mixture, a dose of 300,000 units persisted in the blood for 24 hours. It was found also that if aluminum monostearate were added to the oily suspension of procaine penicillin the dissociation was further delayed so that a single dose would last for three days. Procaine penicillin made the treatment much easier for both doctor and patient, but the slow absorption meant that there was never a high concentration in the blood. To overcome this drawback, soluble sodium penicillin was often given in combination with the relatively insoluble procaine salt. This ensured a high initial concentration in the body, together with a long-continued action. More recently other salts of penicillin have appeared.

Diethylaminoethyl-ester hydroiodide of benzyl penicillin is a sparingly soluble salt that forms a depot like the procaine salt. Its peculiarity is that it appears to have an affinity for the inflamed lung and appears in much higher concentration in the sputum. This should be of advantage in the treatment of lung conditions.—Sir Alexander Fleming, The Shattuck Lecture: Twentieth-Century Changes in the Treatment of Septic Infections, *The New England Journal of Medicine,* June 18, 1953.

TREATMENT OF ACTINOMYCOSIS WITH ISONIAZID

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The remarkable development of antibiotics and chemotherapeutic agents in recent years has resulted in improved methods of treatment in many infectious diseases; however, despite exhaustive clinical and laboratory investigations, many fungous infections continue to be generally fatal.[1] The commonest of these diseases is actinomycosis.[2] Although radiation therapy and surgery [3] are of value in localized actinomycotic infections, the sulfonamides and penicillin provided the greatest improvement in the prognosis of this mycotic disease.[4] Nonetheless, even with these agents the morbidity and mortality remained significant.[5] Recently aureomycin was demonstrated to be effective in the treatment of this condition.[6]

While searching for an inexpensive, effective, and nontoxic therapeutic agent for use in actinomycosis, isoniazid (Nydrazid) was considered. Isoniazid was recently demonstrated to be of value in tuberculosis.[7] Inasmuch as it has long been recognized that the tissue reaction and clinical picture in tuberculosis and actinomycosis are very similar,[8] it was decided to investigate the action of this agent in actinomycotic infections. The present paper constitutes a report of isoniazid therapy in three cases of localized actinomycosis.[9]

REPORT OF CASES

CASE 1.—A 9-year-old Negro girl was observed in the Antibiotic Clinic of the John Gaston Hospital and the University of Tennessee College of Medicine on June 2, 1952. This patient was referred by the Pediatric Clinic because of a persistent cutaneous lesion overlying the right mandible, of about three years' duration. In April, 1949, this patient had a severe toothache in the right lower jaw. All discomfort disappeared without dental treatment in three days; however, within a week an area of painless and nontender induration developed over the right lower jaw and persisted unchanged until May 14, 1952. Thereafter, progressive swelling was observed associated with moderate tenderness and trismus. On May 17, 1952, the lesion drained spontaneously, and the child was brought to the Pediatric Clinic of the John Gaston Hospital. No clinical improvement followed the administration of 2 gm. of sulfadiazine daily for a week. Therefore, the patient was referred to the Antibiotic Clinic for fungal studies.

Examination on June 2, 1952, revealed a chronic granulomatous lesion of woody consistency overlying the right mandible (fig. 1*A*). The area of involvement measured 2.6 by 2 cm. in diameter. A small amount of thin, yellowish material was draining from the orifice of a sinus located toward the periphery of the lesion. It was possible to pass a small probe along this sinus tract for a distance of 1.4 cm. There was no extension of the process into the oral cavity. A moderate degree of trismus restricted the separation of the anterior teeth to 2.9 cm. Dental consultation and roentgenologic studies revealed a periapical abscess about the roots of the right first molar tooth. No other abnormality was noted. Examination of the seropurulent material draining from the sinus disclosed the characteristic sulfur-like granules of Actinomyces bovis. The diagnosis of actinomycosis was subsequently confirmed by microscopic and cultural methods.

Isoniazid therapy was begun on June 12, 1952, in a dose of 300 mg. per day; 100 mg. was administered every eight hours. Inasmuch as the child weighed 73 lb. (33.2 kg.), this was approximately 9 mg. per kilogram of body weight per day. Because of the possibility of toxic effects resulting from dosage of this magnitude in such a young person, the patient was carefully examined each week in the Antibiotic Clinic, with especial attention being focused on the nervous system. In addition, comprehensive hematological, hepatic, and renal studies were made at weekly intervals. Slow but progressive improvement was noted. By July 16 (after five weeks of treatment), the area of involvement was sharply circumscribed and measured only 0.5 by 0.4 cm., the anterior teeth could be separated 3.6 cm., and the only complaint was intermittent mild pruritus about the lesion. Nevertheless, a small amount of thin purulent material continued to exude from the sinus orifice, and a culture obtained on July 3 yielded A. bovis; however, no sulfur granules could be detected. Since no toxic effects had been noted, it was decided to double the amount of medicament and to observe the child every other day. Rapid improvement ensued. By Aug. 19 it was possible to discontinue medication, inasmuch as the lesion had entirely epithelized, and the patient was completely asymptomatic. Only a small area of induration marked the location of the previous lesion (fig. 1*B*). On Sept. 28, the first right molar tooth was extracted without difficulty and with no sequelae. This patient has now been observed for six months and shows no evidence of recurrence of infection. In vitro sensitivity studies made with the organism isolated from this patient demonstrated a definite inhibitory effect by isoniazed on this strain of A. bovis (see table).

Sensitivity of Actinomyces Bovis to Isoniazid

Case in Which Strain of A. Bovis Was Taken	Days After Inoculation	Micrograms of Isoniazid per Cubic Centimeter of Medium					
		3,125	1,562	780	390	195	98
1	3	—	—	—	—	—	+
	7	—	—	—	—	+	+
	14	—	—	—	+	+	+
2	4	—	—	—	+	+	+
	5	—	—	+	+	+	+
	14	—	—	+	+	+	+
3	4	—	—	—	—	+	+
	5	—	—	—	—	+	+
	14	—	—	—	—	+	+

— denotes inhibition.
+ denotes lack of inhibition.

The white blood cell count ranged from 12,000 to 7,400 per cubic millimeter, and the hematocrit from 35.5 to 40%. Urinalyses were persistently within normal limits. The sedimentation rate (Wintrobe, corrected) varied from 0.9 to 0.4 mm. maximal fall per minute (Rourke-Ernstene technique), the blood nonprotein nitrogen from 25 to 31 mg. per 100 cc., and the total protein from 6.6 to 7.9 gm. per 100 cc. with albumin from 4.2 to 5.2 gm. per 100 cc. and globulin from 2.4 to 2.8 gm. per 100 cc. Total serum bilirubin ranged from from 0.2 to 0.28 mg. per 100 cc.; sulfobromophthalein (Bromsulphalein) retention (after 45 minutes and with 5 mg. per kilogram of body weight intravenously) was 0 to less than 5%; cephalin-cholesterol flocculation tests were persistently 0 at 24 hours; and total plasma cholesterol from 122 to 172 mg. per 100 cc. with the cholesterol esters from 48 to 82%. Three cultures were negative for tubercle bacilli; the intradermal tuberculin test (purified protein derivative—first strength) was negative at 48 hours, but the second strength

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E. R. Squibb & Sons, New York, supplied the isoniazid (Nydrazid) used in this study.

Because of lack of space, the bibliographic references have been omitted from THE JOURNAL and will appear in the authors' reprints.

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purified protein derivative tuberculin test resulted in 1+ at 48 hours. A chest roentgenogram was interpreted as being within normal limits.

The clinical response and the in vitro sensitivity studies in this case indicate that isoniazid is effective in localized actinomycosis. It would appear that larger amounts of medicament are required in actinomycosis than in tuberculosis. Had 600 mg. (18 mg. per kilogram) been administered from the beginning of treatment, a more rapid clinical response probably would have occurred. Although this 9-year-old child received 30 gm. of isoniazid over a period of 67 days, no toxic effects were observed.

Case 2.—A 69-year-old Negro woman was referred from the General Medicine Clinic to the Antibiotic Clinic of the John Gaston Hospital on June 10, 1952, with the complaint of a mass in the neck. Approximately four weeks previously the patient noted a slight swelling in the left supraclavicular space. During the ensuing week, there was a marked increase in the size of the lesion and the area became moderately tender and warm to the touch. Very little change was noted in the following three weeks. There were no chills, no weight loss, no weakness, and no anorexia. No history could be elicited of trauma, syphilis, upper respiratory infections, or contact with tuberculosis. Examination revealed a mass in the left supraclavicular space extending upward over the lateral aspect of the base of the neck. This lesion measured 2.2 by 3 cm. in its greatest diameter and was moderately tender and warm on palpation. A small fluctuant area was present along the medial border of the mass. No other significant findings were observed.

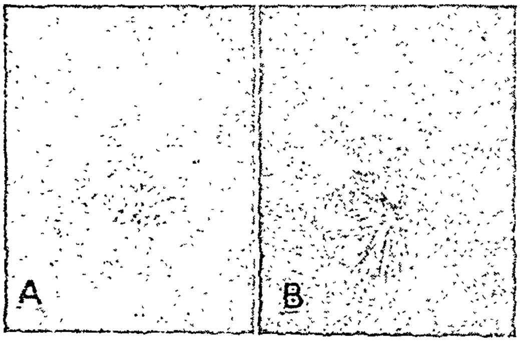

Fig. 1.—Chronic granulomatous lesion overlying the right mandible in case 1, before (*A*) and after (*B*) isoniazid therapy.

The fluctuant area was aspirated by aseptic technique, and about 2 cc. of rather thin, brownish-yellow material was obtained. Sulfur-like granules were readily demonstrated. Subsequently bacteriological studies yielded Mycobacterium tuberculosis and A. bovis. After aspiration chronic drainage developed.

Isoniazid therapy was begun on Aug. 7, 1952. This patient was treated entirely on an ambulatory basis, since hospitalization was refused. It was decided to administer 800 mg. of isoniazid daily—200 mg. four times a day. Inasmuch as the patient weighed 125 lb. (56.8 kg.), this was 14.1 mg. per kilogram of body weight per day. Because of the amount of medicament employed, the patient was observed every third day and comprehensive laboratory examinations were obtained to detect any evidence of toxicity. There was rapid clinical improvement. By Aug. 21 (two weeks after the institution of treatment), all drainage had ceased and there had been a marked reduction in the size of the lesion. Neither heat nor tenderness could be detected on physical examination of the lesion. Inasmuch as the patient's only complaint was moderate dizziness, treatment was continued. Two weeks later (Sept. 4), epithelization was complete. In addition to the dizziness, which had remained unchanged, the patient now complained of a slight tingling sensation in the fingers and toes; all reflexes were normal, and no neurological abnormality could be detected. Medication was discontinued on Sept. 16. On that date only a small area of induration was present. The patient was entirely asymptomatic and had gained 2 lb. (0.9 kg.) while under treatment. In vitro sensitivity studies using the strain of A. bovis isolated from this patient demonstrated a definite antagonistic action by isoniazid (see table).

The white blood cell count ranged from 10,200 to 8,400 per cubic millimeter with persistently normal differential determinations, the red blood cell count from 4,180,000 to 4,420,000 per cubic millimeter, and the hematocrit from 37 to 40%. All urinalyses were within normal limits. The sedimentation rate (Wintrobe, corrected) ranged from 1.4 to 0.9 mm. maximal fall per minute (Rourke-Ernstene technique); the blood nonprotein nitrogen from 29 to 25 mg. 100 cc.; total protein from 6.8 to 7.2 gm. per 100 cc. with albumin from 4.1 to 3.7 gm. per 100 cc. and globulin from 2.7 to 3.5 gm. per 100 cc.; cephalin-cholesterol flocculation from 0 to 2+ at 24 hours; and total plasma cholesterol from 156 to 119 mg. per 100 cc. with cholesterol esters from 68 to 75%. The Kahn blood test was negative. The intradermal tuberculin test (purified protein derivative—first strength) was 2+ at 48 hours. Two chest roentgenograms were interpreted as being within normal limits.

Isoniazid was apparently the drug of choice for the treatment in this case, inasmuch as it was effective against both the tubercle bacillus and A. bovis. Although this patient received 14.1 mg. per kilogram per day of isoniazid for 42 days (a total of 33.6 gm.), no significant toxic effects were noted. Mild dizziness was experienced on the sixth day of treatment and persisted unchanged; mild tingling in the extremities developed during the third week of therapy. Both of these side-effects disappeared within two weeks after medication was discontinued. There has been no evidence of recurrence of infection in the five months since the completion of therapy.

Case 3.—A 29-year-old Negro man was referred from the Orthopedic Clinic to the Antibiotic Clinic of the John Gaston Hospital and the University of Tennessee College of Medicine on June 25, 1952, because of a chronic lesion involving the right zygomatic area of the face. This patient had been hospitalized in the Orthopedic Service from Feb. 11 to March 1, 1952, after an automobile accident in which he sustained a comminuted fracture of the upper one-third of the shaft of the right tibia, a simple fracture of the right fibula, a fracture of the transverse process of the fourth lumbar vertebra, brain concussion, and multiple lacerations of the face and lip. While in the hospital he received 300,000 units of penicillin intramuscularly each day. Shortly after being discharged in March, the patient noted an area of nonpainful and nontender swelling, which involved the right superior portion of the face. During the latter part of May facial tenderness developed, and he was referred to the General Surgery Clinic, where the clinical impression was cellulitis of the face. This resulted in his admission to the Surgical Service of the John Gaston Hospital on June 3, 1952. Incision and drainage were performed on June 5. This procedure was reported to reveal a deep lying abscess over the right zygomatic process, which contained approximately 10 cc. of purulent necrotic material. From June 3 to June 5, the patient received 300,000 units of penicillin intramuscularly every 3 hours and 0.5 gm. of streptomycin every 12 hours; from June 6 until he was discharged (June 11), medication consisted of 100,000 units of penicillin every 3 hours and 0.5 gm. of streptomycin every 6 hours; thereafter, until the patient was seen in the Antibiotic Clinic, he was given 4 gm. of sulfadiazine daily (total of 60 gm. orally). Inasmuch as tenderness and swelling persisted, the patient was referred to the Antibiotic Clinic for further studies.

Examination on June 25 revealed an indurated area of woody consistency that measured 6.5 by 5 cm. overlying the right zygomatic area and extending superiorly almost to the lower eyelid. Minimal trismus was present. A moderate amount of seropurulent material was draining from a sinus tract located in the line of the previous incision and drainage. Gross and microscopic examination of this exudate revealed numerous sulfur-like granules. A culture of this material yielded A. bovis.

The patient was immediately given isoniazid, 700 mg. per day. Since the weight was 165 lb. (75 kg.), this constituted 9.3 mg. per kilogram of body weight per day. Gradual but definite improvement was observed and by July 17 (22 days after the institution of therapy) all drainage had ceased. No tenderness was present, and the anterior teeth could be separated 5.2 cm.; however, the patient complained of severe nausea associated with the ingestion of the medicament. Nausea was said to occur regularly about 5 minutes after medication and to persist for 10 to 15 minutes. The presence of food in the stomach markedly reduced the nausea. Vomiting did not occur. Isoniazid therapy was discontinued on July 24 after 28 days of treatment, inasmuch as the lesion had apparently epithelized and the supply of medicament was temporarily exhausted. Nine days later (Aug. 2) a painless, slightly tender area was observed approximately 0.5 cm. below the right eye. Needle aspiration of this area was carried out with aseptic technique, revealing a minute amount of yellowish material. Immediate gross and microscopic examinations revealed atypical granules. The filaments comprising these sulfur-like granules were quite loosely arranged, suggesting some degenerative action (fig. 2). No growth occurred in culture. Since the patient was quite depressed and no isoniazid was immediately available, he was given aureomycin, 3 gm. daily for 10 days and then 2 gm. for 18 days. By Nov. 10, 1952, epithelization was complete and no swelling or tenderness was present. In vitro sensitivity studies using the organism obtained from this patient again revealed a definite inhibitory action by isoniazid against A. bovis (see table).

The white blood cell count ranged from 10,200 to 6,000 per cubic millimeter, and the hematocrit from 41 to 45%. Repeated urinalyses were within normal limits. The sedimentation rate (Wintrobe, corrected) ranged from 1.4 to 0.6 mm. maximal fall in 1 minute (Rourke-Ernstene technique); the blood nonprotein nitrogen from 29 to 33 mg. per 100 cc.; total serum bilirubin from 0.28 to 0.84 mg. per 100 cc.; and total protein from 7.3 to 7.6 gm. per 100 cc. with albumin from 4.2 to 4.6 gm. per 100 cc. and globulin from 2.7 to 3.2 gm. per 100 cc. The cephalin-cholesterol flocculation test was persistently 0 at 24 hours, and total plasma cholesterol varied from 162 to 198 mg. per 100 cc. with cholesterol esters from 50 to 71%. The Kahn blood test was negative, as was the intradermal tuberculin test (purified protein derivative—first and second strengths). Comprehensive roentgenologic examinations were nonrevealing.

This patient received much less isoniazid than did the other two patients, only 19.6 gm. as compared with 30 gm. and 33.6 gm., respectively. Nevertheless, gradual but definite evidence of improvement was observed. The morphological alteration of the sulfur-like granules demonstrated after the administration of isoniazid and the fact that A. bovis could not be cultured at the time of relapse are most interesting. Again, no significant toxic effects were noted.

COMMENT

In this era of antibiotic and chemotherapeutic agents, the fungous diseases have become increasingly important. In all probability their relative resistance to modern methods of treatment has been a factor in this development. In the past the diagnosis of fungous infections was often academic, but with the development of more effective therapeutic regimens prompt diagnosis is important. The current literature mirrors the greater frequency with which these diseases are being considered and diagnosed. Certainly, the laboratory procedures required for an unequivocal diagnosis of these infections necessitate some degree of training but are not overly difficult, time consuming, or expensive.

The commonest of the highly fatal mycotic infections is actinomycosis.[2] The exact incidence of this condition is not known, but it cannot be extremely rare, since 10 cases were observed at the John Gaston Hospital and the University of Tennessee College of Medicine in the past three years. It would appear that actinomycosis is frequently not considered and so is often misdiagnosed. In case 1, the patient had been observed by numerous physicians for three years and yet fungous diseases had not been investigated. Similarly, case 3 was regarded as a chronic pyogenic infection. These two cases emphasize the fact that actinomycosis should be considered in the differential diagnosis of all subacute and chronic inflammatory processes in which the etiological agent is not readily obvious; especially is this indicated if the cervicofacial area is involved and if there is a preceding history of trauma. Undoubtedly numerous patients with actinomycosis have been diagnosed as having tuberculosis; frequently microscopic and bacteriological procedures are required to differentiate these conditions. In case 2 both infections were present.

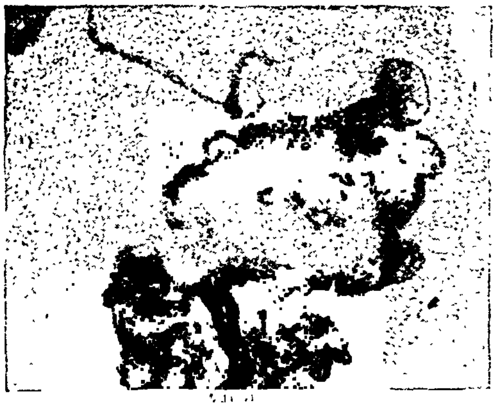

Fig. 2.—Sulfur-like granule in case 3.

Surgical procedures and radiation therapy have proved to be of value in localized actinomycosis.[8] More recently the sulfonamides, penicillin, and aureomycin have been shown to be effective in both localized and disseminated forms of this disease.[9] Even so, treatment has remained prolonged, expensive, and far from uniformly successful.

In view of the reported value of isoniazid in tuberculosis (a disease in many ways similar to actinomycosis), this agent was investigated in the treatment of actinomycosis.[7] In vitro studies with three strains of Actinomyces bovis demonstrated a definite inhibitory effect by isoniazid. Similarly, in vivo results with this agent were most encouraging. It appears that much larger doses must be administered in actinomycotic infections than are usually employed in tuberculosis; instead of 2 to 4 mg. per kilogram of body weight per day, 10 to 18 mg. per kilogram per day seems to be indicated. If smaller amounts of medicaments are administered, improvement is very gradual and recurrence is likely. This is illustrated by case 3 and the initial treatment of case 1. With doses up to 18 mg. per kilogram per day, no evidence of significant toxicity was observed over a period of 4 to 10 weeks.

Side-effects consisted of dizziness, tingling in the extremities, anorexia, and nausea. Whether a more prolonged course of therapy would have resulted in increased toxicity is uncertain. Obviously, until more is known concerning isoniazid, patients receiving such dosage should be carefully observed. A review of the current literature suggests that neurological disease, a history of emotional instability or of psychotic episodes, or evidence of serious renal or hepatic disease might contraindicate the use of isoniazid. No patient in the present series received isoniazid until a thorough history and physicial examination had essentially eliminated neurological disease. Likewise, renal and hepatic function were determined prior to treatment. The one therapeutic failure in this study occurred in a patient (case 3) who received only 9.3 mg. per kilogram per day of isoniazid for a period of 28 days (a total of 19.6 gm.). The other two patients received 30 gm. and 33.6 gm. over a period of 67 and 42 days, respectively. It is realized that the follow-up periods in the three cases reported in this study are quite brief and that prolonged observation is necessary; however, the in vitro studies and initial clinical results indicate that isoniazid is of value in the treatment of actinomycosis.

SUMMARY

In vitro studies demonstrated an inhibitory effect by isoniazid (Nydrazid) against three strains of Actinomyces bovis. Encouraging clinical results were obtained in three cases of cervicofacial actinomycosis. No significant toxic effects were observed. A definite evaluation of the effectiveness of isoniazid in the treatment of localized and disseminated actinomycosis will require the prolonged observation of a large series of cases.

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CONTROLLED ERGOMETRIC STUDIES OF EFFECT OF HEPARIN ON INTERMITTENT CLAUDICATION

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Clinical experience has demonstrated the need for an accurate method for the determination of claudication time.* The subjective report of the patient with intermittent claudication is frequently extremely variable and has proved unsatisfactory for the evaluation of therapy in occlusive vascular disease. The time of onset of claudication pain may be influenced by the rate of walking,[1] the gradient of the incline on which the walking is done, and psychological factors. Patients frequently report variations in claudication time apparently related to environmental temperature or humidity.

Interest in this subject was renewed following the report of Graham and co-workers,[2] later confirmed by Engelberg,[3] suggesting that intermittent heparin administration resulted in relief of angina pectoris in patients with coronary arteriosclerosis. Recognizing the difficulty in evaluating the effect of any treatment for angina as well as the basic similarity of angina and claudication,[4] we have endeavored to determine objectively whether heparin would alter the development of intermittent claudication in patients with arteriosclerosis of the lower extremities. More recently Engelberg and Massell [5] have reported marked improvement in level walking tolerance in 8 out of 10 patients with peripheral arteriosclerosis receiving heparin therapy. In this study there was no control period of placebo therapy and no mention is made of the method used to maintain a constant rate of walking during the various tests.

Other studies concerned with the measurement of intermittent claudication have utilized a variety of types of apparatus, including a foot treadle ergometer [1] and a bicycle ergometer.[6] With the latter techniques the rate of exercise was regulated by a metronome. Rhythmic faradic stimulation of the leg muscles has been used to control the rate and strength of muscle contraction.[7] It seemed advisable to eliminate voluntary control of the rate of muscular contraction but to allow the subject to utilize his normal gait. An electrically driven treadmill ergometer was therefore constructed.

METHOD

A treadmill consisting of a 14 in. wide endless rubberized canvas belt on wooden rollers was activated by a ¼ h. p. alternating current electric motor. These two units were coupled by means of a variable speed belt drive, a fixed ratio reduction gear drive, and a chain drive, which transmitted the power to rollers at both ends of the treadmill. Both the treadmill and the power unit were mounted on a stable platform, the surface of the treadmill being level. On either side of the treadmill,

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Aided by grants from the Kress Foundation, the Albert and Mary Lasker Foundation, the Lillia Babbit Hyde Foundation, and the Hampil Foundation.

* For this study the definition of claudication time was that point at which walking was no longer possible because of the severity of cramps, aching, or extreme fatigue in the muscles of one or both legs.

[1] Wright, I. S.: Vascular Diseases in Clinical Practice, ed. 2, Chicago, Year Book Publishers, Inc., 1952.

[2] Graham, D. M., and others: Blood Lipids and Human Atherosclerosis: The Influence of Heparin upon Lipoprotein Metabolism, Circulation 4: 666, 1951.

[3] Engelberg, H.: Heparin Therapy of Severe Coronary Atherosclerosis, with Observations of Its Effect on Angina Pectoris, the 2-Step Electrocardiogram and the Ballistocardiogram, Am. J. M. Sc. **224**: 487, 1952.

[4] Allen, E. V.; Barker, N. W., and Hines, E. A., Jr.: Peripheral Vascular Diseases, Philadelphia, W. B. Saunders Company, 1946, p. 37. Lewis, T.: Pain in Muscular Ischemia: Its Relation to Anginal Pain, Arch. Int. Med. **49**: 713 (May) 1932. Katz, L. N.; Lindner, E., and Landt, H.: On the Nature of the Substance(s) Producing Pain in Contracting Skeletal Muscle: Its Bearing on the Problems of Angina Pectoris and Intermittent Claudication, J. Clin. Investigation **14**: 807, 1935.

[5] Engelberg, H., and Massell, T. B.: Heparin in the Treatment of Advanced Peripheral Arteriosclerosis: Preliminary Report, Am. J. M. Sc. **225**: 14, 1953.

[6] Texter, E. C., Jr.; Redisch, W., and Steele, J. M.: Induced Intermittent Claudication, Am. J. M. Sc. **222**: 653, 1951.

[7] Hitzrot, L. H.; Naide, M., and Landis, E. M.: Intermittent Claudication Studied by a Graphic Method, Am. Heart J. **11**: 513, 1936.

separated by 24 in., guide bars were placed at a level convenient to the hands of the subject being tested. Along these guide bars sliding tubes were placed and connected to pull switches in such a fashion that a short backwards pull by either of the subject's hands would either start or stop the motor (fig. 1). The speed of the treadmill surface could be varied from 70 to 210 ft. per minute. When the variable speed drive was locked, the speed, as determined by mechanical counter and stop watch, was found not to vary to any significant degree under loads ranging from none to 250 lb. (113.4 kg.), or with ordinary variations in line voltage. The apparatus was placed in a quiet examining room in such a way that the test subject faced a blank wall while walking.

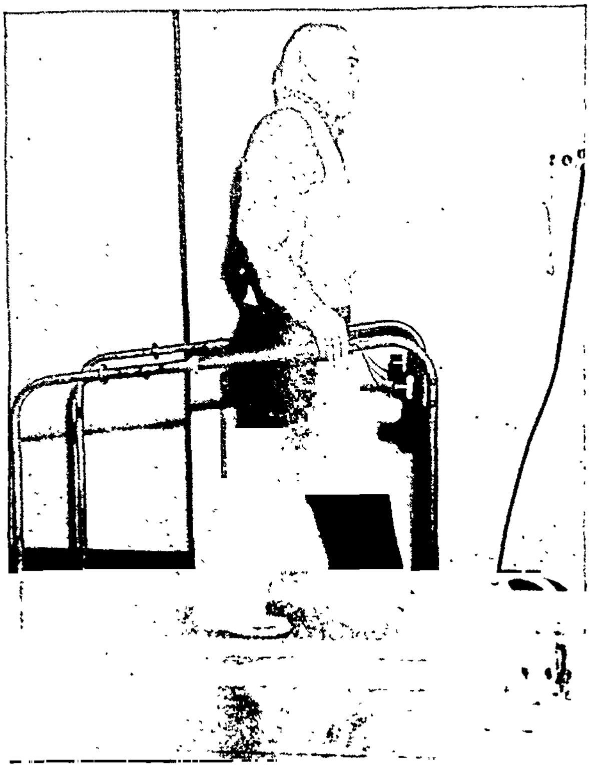

Fig. 1.—Subject walking on treadmill ergometer. The right hand is in position to activate the pull switch.

The subject was tested at approximately the same hour (usually 9 a. m.) of the same day of each week. Rarely two or three weeks passed between tests. After sitting quietly for 30 minutes, he was told to mount the treadmill, start it himself, and walk as long as he could. In these studies the speed of the machine was set at 140 ft. per minute, at which rate intermittent claudication always developed. When the subject could no longer walk because of claudication, he stopped the machine by pulling the switch at his side. Placebo or heparin was then injected intravenously, and after resting 30 minutes the patient repeated the procedure. The average of the two claudication times was recorded. Except for one observer, the subject was alone in the room. The subject could not see the observer from his walking position, and no conversation was carried on. Time was measured with a stop watch by the observer who did not know which medication was being given, in most instances. The patients were not given information about medication or claudication time. Wrist watches were removed, but one subject (case 6) counted his steps. Medication, given intravenously twice weekly, consisted of isotonic sodium chloride solution, 2 ml., or heparin sodium solution (Liquaemin †), 50 mg. of heparin sodium per milliliter of sterile isotonic solution, 2 ml. The subjects all received two injections each week, whether or not they were tested during that week. All subjects had stopped smoking at least two months before this study began. No medication other than heparin or placebo was given.

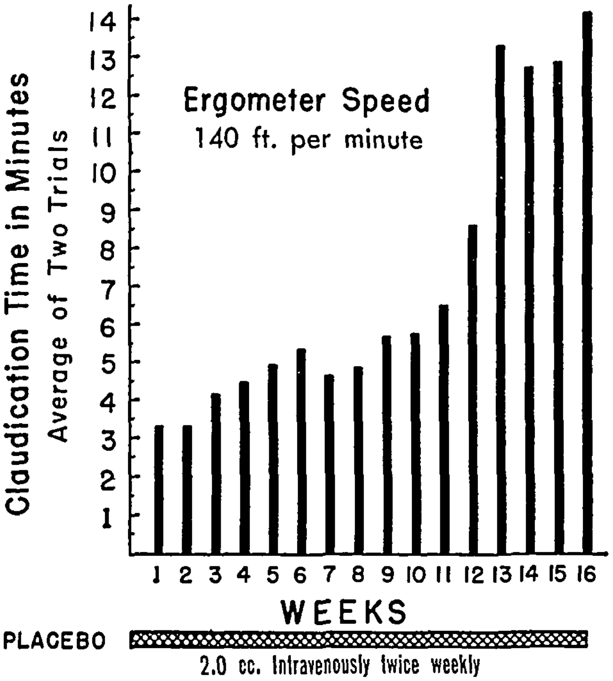

Fig. 2.—Progressive improvement of claudication times of subject in case 1 while receiving only placebo therapy.

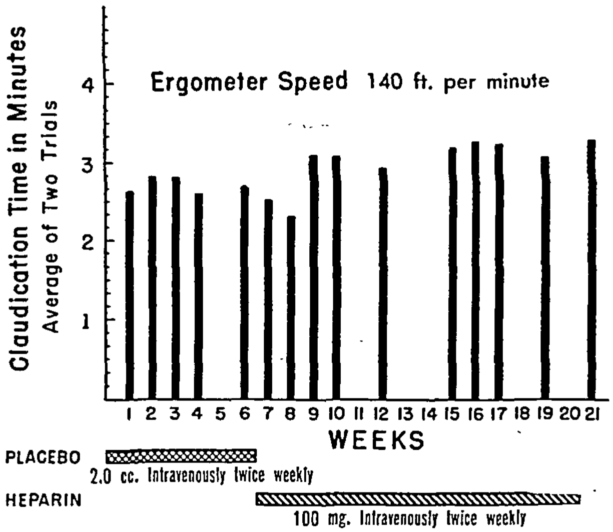

Fig. 3.—Absence of improvement of claudication times of subject in case 2 during 6½ weeks of placebo therapy and 14½ weeks of intermittent heparin therapy.

The subjects reported in this study were chosen from among the outpatients at the New York Hospital Medical

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† Liquaemin is manufactured by Organon Inc., Orange, N. J.

Vascular Clinic. Although the total number, six, is small, it should be noted that each was followed in this study for periods of from 12 to 24 weeks. Data on other subjects on whom observations were made are not included in this report because of inability or unwillingness to come to the hospital twice weekly for a minimum of 12 weeks, a period arbitrarily chosen for inclusion in this report. Two of these latter subjects improved so rapidly while receiving placebo that they felt no further need for the frequent visits. All subjects included in this report complained of intermittent claudication after walking short distances. All showed evidences of arterial insufficiency of one or both lower extremities, as manifested by diminished or absent arterial pulsations and oscillometric readings, pallor on elevation, rubor on dependency, and reduced skin temperature. In all cases the diagnosis of arteriosclerosis obliterans was determined by the usual clinical criteria,[1] in some cases confirmed by radiographic and angiographic examination. Patients were excluded if there was evidence or suspicion of thromboangiitis obliterans or embolic arterial occlusion, as were those with skin ulceration, orthopedic or neurological conditions, or cardiac decompensation.

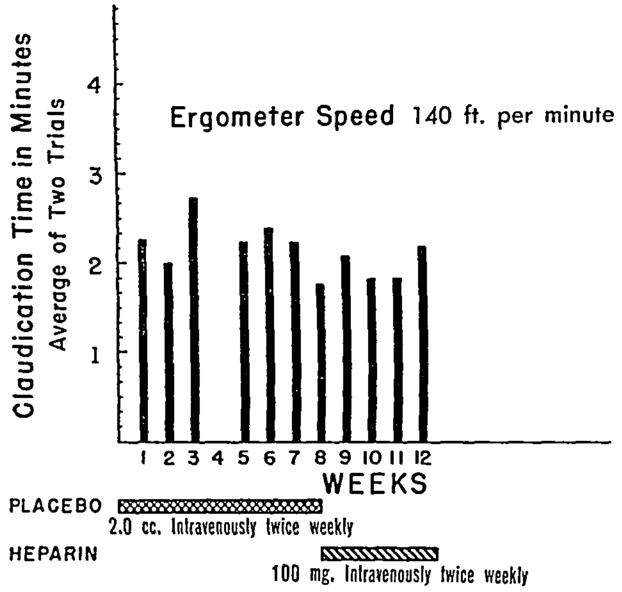

Fig. 4.—Absence of improvement of claudication times of subject in case 3 during eight weeks of placebo therapy and four weeks of intermittent heparin therapy.

REPORT OF CASES

Case 1.—A 51-year-old white man complained for 15 months of bilateral intermittent claudication after walking 500 ft. Examination revealed absent posterior tibial and dorsalis pedis pulsations and absent oscillometric pulsations at the ankles and feet. On placebo therapy alone he showed striking prolongation of his claudication times (fig. 2) and reported corresponding improvement in his ordinary walking. Oscillometric pulsations appeared at the ankles and gradually increased to about one-half the normal minimum. This study began in October and ended in January.

Case 2.—A 52-year-old white man complained for five years of bilateral intermittent claudication after walking 300 ft. Examination showed only feeble femoral pulsations, markedly diminished oscillometric pulsations below the knees, and absent oscillometric pulsations at the ankles and feet. Three years earlier radiographic and angiographic studies had demonstrated calcified and almost completely occluded terminal aorta and iliac vessels. A bilateral lumbar sympathectomy had been done three years prior to the present study, but there was no improvement. During 22 weeks of placebo and heparin therapy there was moderate subjective improvement, with no significant alteration in the signs of occlusive arterial disease or claudication time (fig. 3). This study began in March and ended in August.

Case 3.—A 51-year-old white woman complained for four years of severe bilateral intermittent claudication after walking 300 ft. Femoral pulsations were weak, with absent oscillometric pulsations at the ankles and feet. Radiographic and angiographic studies two years earlier had revealed calcified and partially occluded iliac vessels. During 12 weeks of placebo and heparin therapy there was no significant change in the signs of occlusive arterial disease or in the claudication time, but the patient complained of increasingly severe limitation of ordinary walking (fig. 4). She abandoned the study because of failure to improve. This study began in March and ended in June.

Case 4.—A 63-year-old white man complained for one year of bilateral intermittent claudication after walking 400 ft. Examination showed absent posterior tibial and dorsalis pedis pulses. Oscillometric readings were markedly diminished at the ankles and absent in the feet. During both placebo and heparin therapy moderate subjective improvement was reported. There was no significant change in the signs of occlusive arterial disease, nor was there any consistent improvement in the claudication times (fig. 5). This study began in April and ended in September.

Case 5.—A 56-year-old white woman complained for three months of intermittent claudication in the right leg after walking 500 ft. Examination revealed absent posterior tibial and dorsalis pedis pulsations on the right. Oscillometric pulsations were markedly diminished at the right ankle and absent in the right foot. Radiographic studies showed calcification of peripheral blood vessels. Gradual moderate subjective improvement was noted during both placebo and heparin therapy. Oscillometric pulsations improved slightly. Claudication times were more often longer during heparin therapy, but the longest was not significantly longer than the longest achieved during placebo therapy (fig. 6). This study began in March and ended in August.

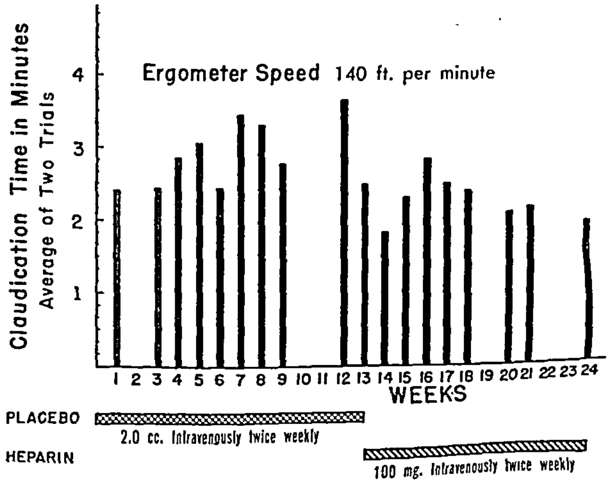

Fig. 5.—Absence of improvement of claudication times of subject in case 4 during 13 weeks of placebo therapy and 11 weeks of intermittent heparin therapy.

Case 6.—A 69-year-old white man complained for two years of bilateral intermittent claudication after walking 500 ft. Examination showed absent posterior tibial and dorsalis pedis pulses. Oscillometric pulsations were markedly diminished below the knees and at the ankles and were absent in the feet. During the period of heparin therapy a gradual subjective improvement was reported, claudication times were longer (fig. 7), and oscillometric readings were improved. During the second period of placebo therapy further improvement, greater in degree, occurred. These findings were interpreted as indication that the improvement and heparin therapy were probably coincidental rather than related. This study began in September and ended in January.

COMMENT

The precise analysis and control of the multiple variables that determine the time of onset of muscle pain on exercise by subjects with peripheral arteriosclerosis is beyond the scope of currently available methods of investigation. Although the mechanical aspects of the exercise procedure may be carefully controlled, with minimization of environmental and psychological variables, variability within certain limits must be considered a characteristic finding in studies on intermittent claudication. Despite this limitation, it has been found feasible and desirable to utilize an electrically driven and controlled treadmill ergometer in long-term studies of intermittent claudication.

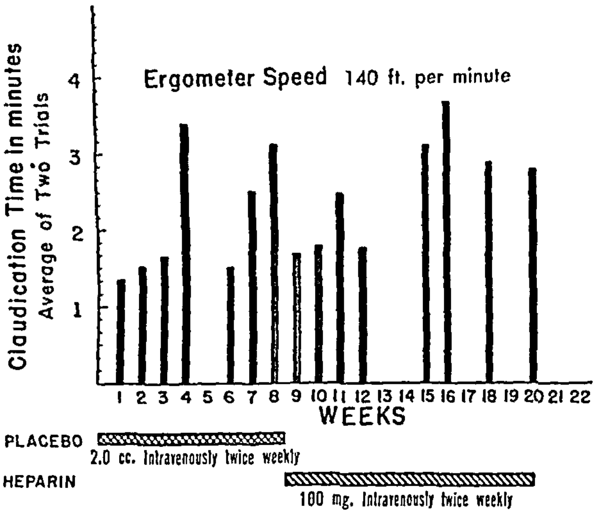

Fig. 6.—Absence of improvement of claudication times of subject in case 5 during 8½ weeks of placebo therapy and 11½ weeks of intermittent heparin therapy.

Important degrees of improvement occurred in the exercise tolerance of patients receiving a placebo (cases 1 and 6). This may be due to a spontaneous occurrence in the course of the arteriosclerotic disease process. It is also possible that collateral circulation has been improved in these subjects in response to repeated tolerance tests with the consequent muscle anoxia. This phenomenon has been postulated as a basic mechanism in the development in intercoronary collateral circulation.[8] In view of the techniques used and the objective evidences of improved peripheral circulation, the psychological effect of treatment was not considered to be a major factor responsible for longer claudication times in these cases.

In other subjects (cases 2 and 4) moderate subjective improvement was reported during placebo and heparin therapy, although there was no significant change in the physical signs of arterial insufficiency, or in the claudication time. In one subject (case 5) moderate subjective and slight oscillometric improvement occurred during placebo and heparin therapy without significant improvement in claudication times. One subject (case 3) experienced increasingly severe subjective symptoms without alteration in physical signs or claudication times.

In none of the five subjects who received intermittent heparin therapy was there a relation of any alteration in subjective symptoms, physical findings, or claudication times to the administration of heparin. The findings of Engelberg and Massell[6] could not be confirmed, probably due to the use of different techniques of study. Similarly, Russek and co-workers[9] have been unable to obtain improvement in anginal symptoms with heparin administration, a finding which coincides with our own.[10] Carefully controlled studies are essential in the evaluation of agents in the treatment of vascular disease. Spontaneous variations in the subjective and objective manifestations of disease, as well as the effects of other coincidental or therapeutic measures, have frequently been mistaken for a specific therapeutic effect of the drug under investigation.

SUMMARY AND CONCLUSIONS

A method for the determination of claudication time in subjects with occlusive arterial disease, utilizing an electrically driven treadmill ergometer, is described. The clinical histories, physical findings, and claudication time records of six arteriosclerotic subjects, with observation periods ranging from 12 to 24 weeks, are presented. The variability of claudication times in the same patient in a controlled situation is illustrated. The potential for significant improvement in the manifestations of arterial

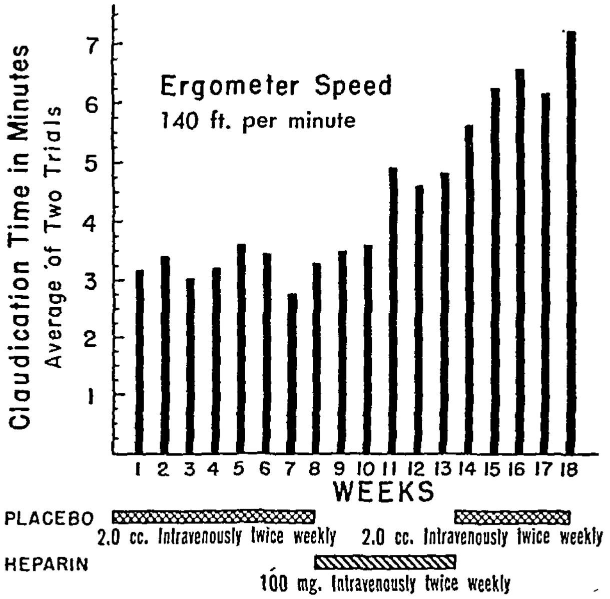

Fig. 7.—Improvement of claudication times of subject in case 6 during five and one-half weeks of intermittent heparin therapy and four and one-half weeks of placebo therapy.

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8. Zoll, P. M.; Wessler, S., and Schlesinger, M. J.: Interarterial Coronary Anastomoses in the Human Heart, with Particular Reference to Anemia and Relative Cardiac Anoxia, Circulation 4: 797, 1951.

9. Russek, H. I.; Urbach, K. F., and Doerner, A. A.: Effect of Heparin in Cases of Coronary Insufficiency: Evaluation by Electrocardiographic Tests, J. A. M. A. 149: 1008 (July 12) 1952.

10. Simon, E. P.: Unpublished data.

disease without treatment, other than abstinence from tobacco, is emphasized. In five arteriosclerotic patients receiving intermittent heparin therapy for periods ranging from 4 to 14 weeks no beneficial effects were observed. Careful control of studies designed to evaluate therapeutic measures for occlusive arterial disease is recommended.

525 E. 68th St. (21) (Dr. Wright).

CLINICAL NOTES

RUPTURE OF A THORACIC ANEURYSM INTO THE STOMACH

William F. Renner, M.D.
and
Joseph Sindelar, M.D., Baltimore

Rupture of an aneurysm of the thoracic aorta into the esophagus is a recognized clinical and pathological entity. Rupture of an aneurysm of the abdominal aorta into the stomach has been reported in at least seven cases. A search of the literature has revealed no report of rupture of a thoracic aneurysm into the stomach. The case we report is a clear example of such an occurrence. Of particular interest is the fact that this case presented symptoms and signs that may be considered diagnostic of rupture of a thoracic aneurysm into the stomach.

REPORT OF A CASE

The patient was a Negro man 61 years of age. His history and that of his family supplied no pertinent information. At noon on the day of admission, severe pain beneath the sternum and in the upper epigastrium developed in the patient. The pain was accompanied by nausea. When the patient arrived in the accident room one hour after the onset of symptoms, he was in shock, with a blood pressure of 60/0 mm. Hg. The skin was cold and clammy. Profuse perspiration was present. A loud systolic murmur was heard over the entire precordium. During the course of the initial examination in the accident room, it was noted that a rapidly expanding tumor mass was developing in the epigastric area. Over the period of a few minutes, the mass was observed to have increased in size. The mass clearly conformed to the outline of the stomach. Shortly after his arrival in the accident room, the patient began to vomit large amounts of bright red blood in a projectile fashion. The patient failed to respond to efforts made to combat anemia and shock, and he died 17 hours after the onset of symptoms.

At autopsy, two saccular aneurysms were found that were both located 3 cm. below the termination of the arch of the aorta (fig. 1*A*). Each aneurysm measured approximately 3 by 2 cm. One was thin walled but intact and had eroded the anterior surface of the fourth thoracic vertebra to about one-third of its depth. The second aneurysm had ruptured into the mediastinum and had dissected its way along the esophagus (fig. 1*B*). At no point had the hemorrhage penetrated the esophageal mucosa. The hematoma was traced down the esophagus to the stomach where it was found to terminate in an irregular opening in the anterior wall of the stomach 3 cm. below the cardiac sphincter (fig. 2). The stomach and duodenum were distended with blood.

Microscopic section of the esophagus showed extensive hemorrhage without penetration of the mucosa. Sections of the aorta were considered typical of syphilitic aortitis. Sections of the mucosal rent in the stomach showed normal gastric mucosa interrupted abruptly by a blood clot that extended through all layers of the stomach.

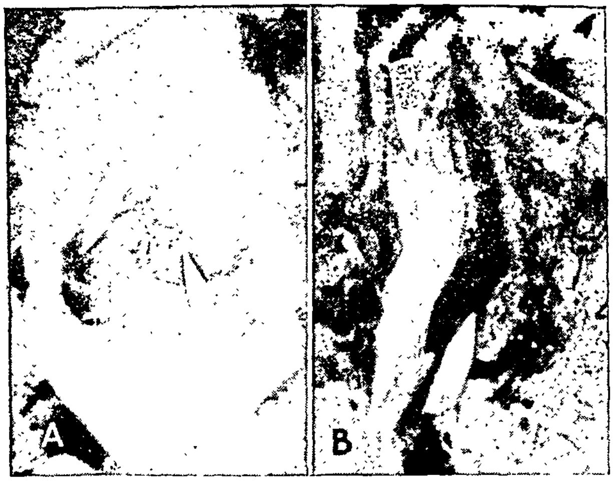

Fig. 1.—*A*, two aneurysms are located in the descending aorta 3 cm. below the termination of the arch of the aorta. The aneurysm to right perforated. *B*, The upper arrow points to the descending aorta; the lower, to the hematoma that dissected its way along the esophagus.

COMMENT

Lemann has made a study of 592 cases in which aneurysms of the thoracic aorta ruptured.[1] In 50, rupture into the esophagus occurred; in none was the rupture into the stomach. Rupture of an abdominal aneurysm into the gastrointestinal tract is rare. In a review of the literature in 1951 by Hirst and Affeldt, only 43 such cases could be found.[2] They added eight cases from a study of 16,633 autopsies. When an abdominal aneurysm does rupture into the gastrointestinal tract, the usual site is the third portion of the duodenum, probably because of its relative fixation. Of the total of 51 cases in which an abdominal aneurysm ruptured into the gastrointestinal tract, only seven ruptured into the stomach.

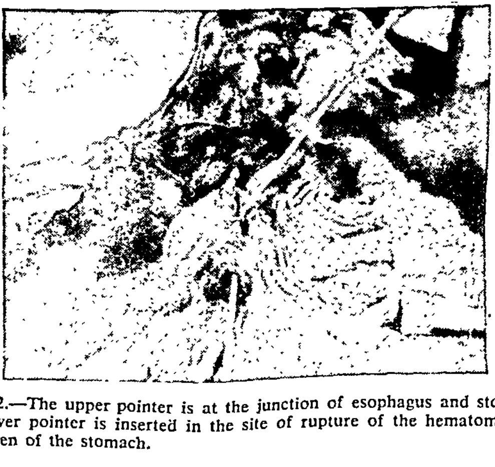

Fig. 2.—The upper pointer is at the junction of esophagus and stomach. The lower pointer is inserted in the site of rupture of the hematoma into the lumen of the stomach.

The occurrence of sudden, severe substernal pain accompanied by shock in an elderly patient invariably brings to the mind of the physician a consideration of acute myocardial infarction, and such was true in the case we report. The progression of events, however,

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From the Franklin Square Hospital.

[1] Lemann, I. I.: Aneurysm of the Thoracic Aorta, Am. J. M. Sc. 152: 210, 1916.

[2] Hirst, A. E., Jr., and Affeldt, J.: Abdominal Aortic Aneurysm with Rupture Into the Duodenum: Report of Eight Cases, Gastroenterology 17: 504, 1951.

quickly made this diagnosis untenable. The severe substernal pain correctly indicated the chest as the primary location of the trouble. The vomiting of large amounts of bright red blood indicated a link between the gastrointestinal tract and a blood vessel of considerable size. The rapidly expanding, firm epigastric mass, with the outline of the stomach in an abdomen that otherwise was soft and flat, could only be caused by a large amount of blood gushing into the stomach under pressure. It is difficult to conceive of any other condition than the one found at autopsy that could have given rise to this combination of symptoms and signs. It might be thought that rupture of an aneurysm into the esophagus could give an identical clinical syndrome; however, in the instance of rupture into the esophagus, the action of the cardiac sphincter does not favor retention of blood under pressure in the stomach and consequent distention as is true of rupture into the stomach. In the few detailed case reports of rupture of an aortic aneurysm into the esophagus, that we have been able to find, no mention is made of enlargement of the stomach.[3] Rupture of an aneurysm of the gastric artery is a condition in which blood is introduced into the stomach rapidly and under pressure; however, this condition would not be expected to cause chest pain. Moreover, in three reported cases of rupture of an aneurysm of the gastric artery into the stomach, no gastric enlargement was noted.[4] The occurrence of severe substernal pain of sudden onset, profuse hematemesis, and a rapidly expanding epigastric tumor, conforming to the gross anatomy of the stomach, may, therefore, be considered a diagnostic triad for rupture of a thoracic aneurysm into the stomach.

SUMMARY

Rupture of a syphilitic aneurysm of the thoracic aorta into the stomach is reported.

11 W. 29th St. (18) (Dr. Renner).

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[3] Spearman, M. P. S.: Traumatic Aneurysm of the Arch of the Aorta with Rupture into the Esophagus, Southwest. Med. 20: 174, 1936. Funk, E. H.: Aortic Aneurysm with Esophageal Rupture, M. Clin. North America 2: 795, 1918.

[4] Donaldson, G. A., and Hamlin, E., Jr.: Massive Hematemesis Resulting from Rupture of a Gastric-Artery Aneurysm; Report of Three Cases, New England J. Med. 243: 369, 1950.

CONGENITAL HEMOLYTIC ANEMIA IN NEGRO BROTHERS

REPORT OF TWO CASES

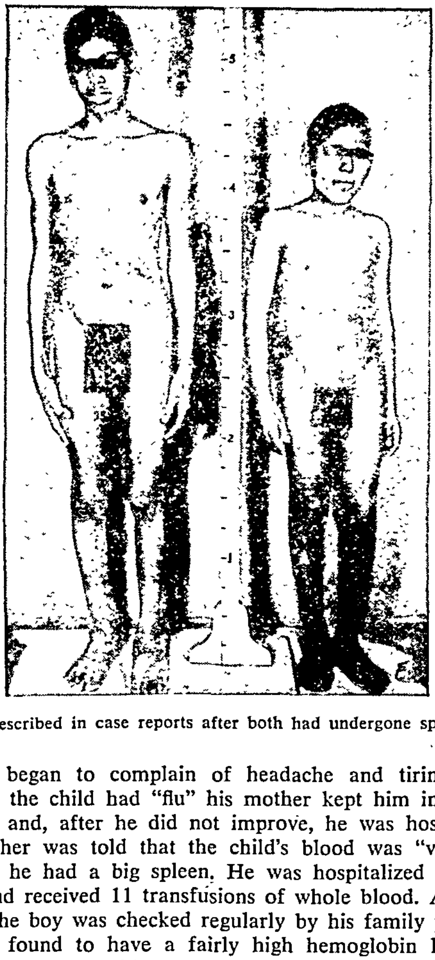
Robert Irby, M.D., Richmond, Va.

Prior to 1944, there had been only one recorded instance of congenital hemolytic anemia in the Negro race. That was the case of a Negro woman of "undoubtedly mixed blood" cited by Wintrobe in 1942.[1] In 1945, Scherer and Cecil[2] reported the disease in a 14-year-old Negro girl, and Smith and Drake[3] presented a 22-year-old Negro man. Both the man and the girl underwent splenectomy with good results. A review of the literature reveals that 15 other cases have been reported in the Negro race by various clinicians. In September, 1950, Butterworth, Kracke, and Riser[4] reported two more cases, a woman and her great aunt. To date, a total of 18 cases in 9 families have been reported. Only 5 of the 18 patients had splenectomy, and it is interesting to note that only 4 of those 18 persons were Negro men.

The purpose of this paper is to present two additional cases of congenital hemolytic anemia in Negro brothers, both of whom were treated by splenectomy. Both of the patients in this report showed strong Negroid characteristics, as did their mother. She, however, in contrast to her sons failed to show any enlargement of the spleen, evidence of anemia or reticulocytosis, or increase in blood cell fragility, serum bilirubin, or microspherocytosis

REPORT OF CASES

Case 1.—A 13-year-old Negro boy was admitted to the hospital on Jan. 15, 1951, because of "big spleen and anemia." The patient had been well until the summer of 1949, at which time he began to complain of headache and tiring easily. Thinking the child had "flu" his mother kept him in bed for 10 days, and, after he did not improve, he was hospitalized. The mother was told that the child's blood was "very low" and that he had a big spleen. He was hospitalized for eight weeks and received 11 transfusions of whole blood. After discharge, the boy was checked regularly by his family physician and was found to have a fairly high hemoglobin level and erythrocyte count, with no evidence of jaundice. There had been no history of jaundice, black urine, hematemesis, black or clay-colored stools, or malaria. Family history failed to



Brothers described in case reports after both had undergone splenectomy.

From the Department of Medicine, Medical College of Virginia.

Drs. G. Watson James III, James O. Burke, and Herbert C. Lee, all of the Medical College of Virginia Hospital, assisted in the preparation of this paper.

[1] Wintrobe, M. M.: Clinical Hematology, ed. 2, Philadelphia, Lea & Febiger, 1946, p. 492.

[2] Scherer, J. H., and Cecil, R. C.: Congenital Hemolytic Anemia in a Negro, J. Lab. & Clin. Med. 30: 244-246 (March) 1945.

[3] Smith, G. T., and Drake, E. H.: Hemolytic Icterus in a Negro Male with Special Reference to the Differential Diagnosis from Bubonic Plague; A Case Report, Mil. Surgeon 95: 270-272 (Oct.) 1944.

[4] Butterworth, C. E., Jr.; Kracke, R. R., and Riser, W. H., Jr.: Hereditary Spherocytic Anemia in the Negro, Blood 5: 793-797 (Sept.) 1950.

reveal any evidence of jaundice or anemia other than in the patient's brother who was admitted to the hospital the same day. The patient had a tonsillectomy when he was 6, with no postoperative complications.

Physical examination revealed a somewhat thin boy in no distress. There was no suggestion of icterus or anemia. The heart and lungs were normal except for a soft blowing systolic murmur heard over the apex. The spleen was felt 5 cm. below the costal margin and was not tender. The liver edge was felt just below the costal margin on the right side. On the fourth hospital day, a slight fever and some icterus developed. It was thought that a crisis was impending, and there was a drop in the reticulocyte count, but the fever subsided and operation was carried out as planned. The laboratory findings are recorded in the table. The diagnosis of congenital hemolytic anemia was made, and splenectomy was performed on the seventh hospital day. The spleen was removed through a left subcostal incision; it measured 15.5 by 11.5 by 4 cm. The pathologist reported that there was splenomegaly probably due to congenital hemolytic jaundice. The boy recovered uneventfully and was discharged *on the 11th* postoperative day.

Laboratory Data on Brothers in Cases 1 and 2 Before and After Splenectomy and Data on Patients' Mother

	Case 1		Case 2		
	Before Splenectomy	After Splenectomy	Before Splenectomy	After Splenectomy	Mother
Hemoglobin, gm. per 100 cc.	14.4	14.4	12.2	15.2	15.6
Red blood cells, per cubic millimeter	4,400,000	4,500,000	3,860,000	4,950,000	5,040,000
White blood cells, per cubic millimeter	6,200	13,200	7,600	8,800	6,000
Reticulocyte count, %	13	4	15	0.2	1.8
Platelet count	168,000	1,098,000	224,000	535,000	....
Sickle cell prep	Negative	....	Negative	....	....
Bleeding time	1'25"	....	1'50"	....	....
Clotting time	4'30"	....	4'25"	....	....
Serum bilirubin, mg. per 100 cc.					
1 min.	0.4	0.2	0.4	0.2	0.2
Total	2.0	0.6	2.4	0.6	0.8
Urine urobilinogen, mg. per day	5.06	0.606	0.609	0.360	....
Fecal urobilinogen, mg. per day	900	198	869 *	710 *	....
Red blood cell fragility, % in saline	0.7 to 0.44	0.7 to 0.44	0.7 to 0.44	0.7 to 0.28	0.56 to 0.28
Microspherocytosis	+ †	+	+	+	− ‡
Sternal marrow	Erythroid hyperplasia	....	Erythroid hyperplasia	....	....
Coombs test	Negative	....	Negative	....	....

* Because in case 2 only 5 gm. feces were excreted in 48 hr. preoperatively and 82 gm. postoperatively, these values were calculated as mg. per 100 gm. of feces.

† Present.

‡ Not present.

CASE 2.—An 11-year-old Negro boy was admitted to the hospital on Jan. 15, 1951, because of "anemia and a big spleen." This patient had a history somewhat similar to his older brother's (case 1). Systems review disclosed that he frequently took laxatives for "sluggish bowels." Except for some inability to keep up with his childhood activities, the boy was well until the summer of 1949. Two weeks after his brother had entered a hospital because of "flu," this boy began to complain of weakness, headache, and general malaise. He was found to have anemia and an enlarged spleen and was given 10 whole blood transfusions over an eight week period. After that he felt well until the summer of 1950, when weakness and a low grade fever developed. When jaundice appeared, he was taken to the hospital where he received an additional pint (0.5 liter) of blood. In contrast to his brother, this patient had recently had dark urine. He had had a tonsillectomy at the age of four without complications.

Physical examination revealed a rather chubby-faced boy, with slightly pale conjunctivas and mucous membranes but no visible icterus. The heart and lungs were clear. The spleen was felt 8 cm. below the costal margin on the left side and was much larger and firmer than that of the brother. The liver edge was not felt. The laboratory findings are shown in the table. Splenectomy was performed. The spleen weighed 360 gm. and measured 12 by 14.5 by 4 cm. The pathologist reported that splenomegaly was probably due to congenital hemolytic jaundice. The child had an uneventful recovery and was discharged on the 11th postoperative day (see figure).

COMMENT

Congenital hemolytic anemia in the Negro race was a rare entity until 1944, but, in the last six years, it has become apparent that this disease in the Negro race is recognized more frequently. Because the disease may be benign in itself, splenectomy has been refused in many cases in the past. Only 4 of the 18 previously reported patients were Negro men.

After the diagnosis of congenital hemolytic anemia was made in the two patients described here, splenectomy was performed in both and was followed by the disappearance of evidence of increased hemolysis and reticulocytosis, although microspherocytosis and increased fragility remained. The mother of the patients was found to have no evidence of jaundice, splenomegaly, or anemia.

In case 2, the fecal urobilinogen was not diminished on the 10th day after splenectomy. Both the preoperative and postoperative determinations were measured on small samples of feces, and, therefore, the daily excretion could not be determined. Whether excessive pigment excretion was the result of gastrointestinal stasis or of continuing hemolysis is difficult to appraise. With the history of sluggish bowel movements in case 2 and with the marked postoperative diminution in the reticulocyte count, it is suspected that intestinal stasis, as well as the use of unavoidably small samples for analysis led to these results.

SUMMARY

Two cases of congenital hemolytic anemia in Negro brothers are presented, with data illustrating the beneficial effects of splenectomy. This report makes a total of 20 patients in 10 families now recorded in the literature. Six of the 20 patients are males.

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MEDICAL EDUCATION in the UNITED STATES and CANADA

FIFTY-THIRD ANNUAL REPORT ON MEDICAL EDUCATION IN THE UNITED STATES AND CANADA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

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Introduction

This 53rd annual report on medical education in the United States and Canada, compiled by the Council on Medical Education and Hospitals, covers the period from July 1, 1952, to June 30, 1953. Included in it are data, derived from official sources, concerning medical schools, students, graduates, the relationship of medical education to national defense, and other topics of importance. This annual compilation is an important reference source for many individuals and organizations that are concerned with medical education. The Council is grateful to the many persons who have contributed to the development of the report and wishes particularly to thank the administrative officers of the medical schools who, at the expense of much time and effort, have provided most of the basic information upon which the report is based.

Publication of the final report of the Survey of Medical Education [1] was an event of major importance this year. Data published annually in this report have reflected financial, organizational, and other problems of the medical schools and have reported the planning and experimentation of the schools to meet these problems. All of those concerned with medical education will therefore welcome an opportunity to review their own problems and plans in light of the careful analyses and recommendations, covering all phases of our medical schools' activities, which are contained in the survey report.

The financial support of medical education continues as a problem of immediate and pressing importance. As is noted in the section on financial support, significant increases in the annual income of the schools has been offset to a considerable degree by expansion in the activities of the schools and by inflationary increases in costs. Although tremendous expenditures have been made by the schools in recent years for the construction of new facilities, a considerable proportion of these expenditures have been for clinical facilities and many schools are still particularly in need of funds for the improvement of their basic science facilities. All schools have not participated equally in the increased support that has been made available, and several have had so little success as to place their continued existence in doubt. However, there are new medical schools in the process of development that seem assured of substantial and continuing support.

Among the many curriculum experiments that have been initiated by the schools, the one that will attract the greatest interest is that being carried on at Western Reserve University. This program is organized completely along the lines of correlative, multi-disciplined teaching and discards the traditional division of teaching by special basic science and clinical disciplines. The first class to receive instruction under this plan was enrolled in 1952-1953. A brief description of the program is contained in the section on major developments, and a panel discussion of it, by members of the Western Reserve faculty, will be found in the Proceedings of the Annual Congress on Medical Education and Licensure for 1953.

Another event that will attract attention is the leveling off in student enrollment. Both last year's freshman class and the expected freshman class for 1953-1954 are slightly smaller than the entering class of 1951-1952. This may be regarded as a temporary readjustment following a period of rapid expansion, and further increases in enrollments are expected when expansion programs now under construction are completed and when new schools now being planned are in full operation.

Certainly more important than this temporary leveling off in the expansion of enrollments of undergraduate medical students is the absence of any increase in the number of graduate students in the basic medical sciences. Continuing failure to increase the supply of scientists in these already undermanned areas will have a serious effect not only upon research programs but upon the quality of the basic educational programs in medicine.

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1. Deitrick, J. E., and Berson, R. C.: Medical Schools in the United States at Mid-Century, New York, McGraw-Hill Book Co., 1953.

This year, for the first time, information is presented on the scholarship and loan funds available to undergraduate students of medicine. These data make it clear that while some schools have relatively large sums for such purposes, a number of other schools can offer little such help to their students.

At this writing, it is too early to tell what the full impact of the Korean truce on the medical schools will be. At least, for a short term, military calls for medical officers may decrease somewhat and the drain on medical faculties may be eased. Nevertheless, a significant degree of mobilization is certain to continue and the need for preparation of medical students for military and civil defense services will persist. Long range plans for medical education for national defense have been under development by the Joint Committee on Medical Education in Time of National Emergency since June of 1950. The section on Medical Education and National Defense reports the initiation, by the Subcommittee on Medical Education for National Defense, of a new experimental program to prepare undergraduate students for their roles in military service and civil defense.

Survey of Medical Education

Previous Educational Numbers have carried brief progress reports of the Survey of Medical Education, which was organized in 1947 under the joint sponsorship of the Council on Medical Education and Hospitals and the Association of American Medical Colleges. It was financed by the American Medical Association, the Association of American Medical Colleges, and a grant from the W. K. Kellogg Foundation. During the past year the final report of the survey was completed and published in book form.[1] The report is based on the findings of detailed visits by the staff of the survey to 41 medical schools, on additional information provided in response to questionnaires by all the medical schools, and on data compiled over the years by the Council on Medical Education and Hospitals and the Association of American Medical Colleges.

Rather than concentrate its attention primarily on the teaching programs of the medical schools, the survey, as explained by its chairman, Alan Valentine [2] in his foreword to the report, early became convinced that its most important contribution lay in the direction of analyzing and defining the current position of the medical schools as social and educational instruments. Thus, a considerable proportion of the report deals with an analysis of the activities of a medical school, the finances of the medical schools and the administrative organization, policies, and practices of the schools.

The report presents the most convincing evidence yet compiled demonstrating the complexity and broad scope of the activities and responsibilities of a modern medical school. It analyzes in detail the activities of typical schools in the three major fields of education, research, and service. This analysis is significant in the light that it sheds on the nature and reasons for the high cost of maintaining a modern medical school. Actually, the report estimates that despite recent substantial increases in the budgets of the medical schools, the schools in terms of purchasing power of the dollar are spending only slightly more on instruction now than they were just before World War II. An analysis of the schools' expenditures indicates that during the decade 1940-1950, primary emphasis was on expansion of research activities. Noting this and other shifts of emphasis, the report urges that the medical schools define precisely the activities that are to be included in medical education, that the schools revise their accounting practices in accord with such a definition, and that the schools maintain a balance in their activities that will preserve their basic function as educational institutions.

These recommendations point up the growing realization among many medical educators that the solution of the financial problem of the medical schools lies as much in reappraising the uses to which available funds are being put as it does in securing additional funds even though there is no question that the total programs of many schools require more adequate support.

It may be commented here that it is doubtful if better cost accounting alone will solve any major problems of inadequate support. Even though it may be shown, as it is in the report of the survey, that university funds assigned to a medical school are used to support the teaching of large numbers of students in other departments, the demonstration of this fact does not increase the total amount of money available to a university for its total educational program. On the other hand, such improved accounting should give the university additional arguments to support its efforts to secure more funds for its medical school and should help to relieve the medical school of possible embarrassment resulting from the fact that its costs are usually high relative to those of other departments of a university.

The report of the survey, however, does suggest certain approaches that should result in more actual money being made available to the medical schools for their essential activities. Thus the report strongly urges that medical schools seek more adequate reimbursement of the indirect costs of research when they accept research grants from government agencies or other sources. The report also urges that the hospital costs of indigent patients be borne by the appropriate private and governmental agencies and not by the medical schools from funds that were given for educational purposes. Again, on the side of conserving the resources and energies of the medical schools, the report warns the schools against the dangers inherent in undertaking extensive medical service programs beyond the needs of the schools' instructional programs.

The report reviews in some detail the various relationships that exist between medical schools and their teaching hospitals and points out that medical schools control appointments to the staff in less than half of their teaching hospitals. The difficulties created for the medical schools by this lack of control in the selection of those who do much important teaching are thoroughly examined. The report makes the further disturbing observation that in certain large city and county hospitals, the unsatisfactory position of the medical schools has not improved essentially since Abraham Flexner's critical comments on these same relationships in 1910. The report urges that until the hospitals referred to fulfill the requirements for a teaching hospital, the medical schools should refuse to conduct teaching programs in them. Unfortunately, many of the schools involved in such unsatisfactory relationships have no other hospitals to which they can readily turn.

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[1] Deitrick, J. E., and Berson, R. C.: Medical Schools in the United States at Mid-Century, New York, McGraw-Hill Book Co., 1953.

[2] The other members of the Survey of Medical Education were Drs. Herman G. Weiskotten, Victor Johnson, and Donald G. Anderson, representing the Council on Medical Education and Hospitals, and Drs. Arthur C. Bachmeyer, Joseph C. Hinsey, and Dean F. Smiley representing the Association of American Medical Colleges. Dr. John E. Deitrick served as director and Dr. Robert C. Berson as associate director of the survey.

The report contains an excellent chapter on the subject of the selection and admission of students to medical school. Emphasizing that the future quality of medical education, research, and service will depend primarily upon the quality of students selected by the medical schools, the report points out that while the schools have expended a great deal of effort in the selection of students, there are a number of ways in which many schools could improve the quality of their work in this area. In general, these schools would benefit by clarifying their policies and criteria for selection, by making more effective use of the information that is available concerning applicants, and by organizing their admissions committees more effectively and giving more adequate financial support to these committees. The report, while decrying discriminatory and restrictive admission practices and policies, makes a strong plea to state authorities and civic groups that they recognize that the intelligent discharge of the admissions function is hampered and not aided by laws and regulations that seek to limit the nature and extent of the personal information that may be made available to a medical school concerning its applicants.

The section of the report dealing with the administrative and departmental organization of the medical schools again calls attention to the complexity of the activities of a modern medical school. It points out the need for fresh thinking in the design of both the over-all administration of the school and the organization of the individual departments of the school.

The chapter of the report dealing with the curriculum is perhaps most noticeable for the critical light it turns on the philosophy and practices of many schools with respect to examinations. The report calls attention to and cites examples of the emphasis many schools place on multiple examinations that tend to dissipate the time and energies of the medical student and to discourage him from developing a mature attitude toward his medical education. This chapter also points to the great dissatisfaction with teaching in outpatient departments that prevails among both students and teachers in the majority of medical schools and analyzes the underlying reasons for this dissatisfaction.

Although many will feel that the portion of the chapter on curriculum dealing with preceptorships and home care programs is overly critical, the weaknesses and abuses of these programs that are reported are real and their recognition and correction are essential if these programs are to have a valid place in medical education.

The final chapter of the report, appropriately entitled "A Summing Up," brings into final sharp focus the more important questions raised in the body of the report: What is medical education? What is a medical school and what are its responsibilities? Should research be the major goal of a medical school and receive the greatest financial support? What is the goal of the medical school in providing medical care?

The report, while not attempting to answer these and other questions with finality makes pointed observations on all of them. It comments that too often a school today is judged by the public by the magnitude of its activities rather than by the quality of its educational program. It discusses the problems created as medical schools have expanded into medical centers and the trend among medical educators to build large empires with increasing influence and control over many areas of health care.

The chapter concludes with a reminder of the essential truth that it is the medical student who should be at the focus of all the medical school's activities and policies and asks what are the effects of the present programs of the schools on the medical student of today. In a brief and vivid answer, it depicts the present program of medical education as encouraging the development of physicians accustomed to living in a protective, institutional environment, whose capacities for independence and leadership remain undeveloped. To guard against this, the report makes a plea for teachers and administrators who have courage and faith in the idea that the quality of medical education will determine the future of medicine in the United States.

Following the main report are six appendices presenting tables and supporting data. Of particular significance and interest is the appendix summarizing student opinions concerning medical education that were elicited at each school visited by the survey. These expressions of student opinion are for the most part mature, well-considered criticisms that merit the careful consideration of all concerned with medical education.

The report is directed not only to medical educators but equally to the general public in the hope that it will provide the public with a better understanding of the modern medical school and its problems. To meet the needs of this group of readers, the report has brought together a great deal of basic information and statistical data concerning the medical schools and their many activities.

Purposely, no schools are singled out by name for praise or censure in the report. Some who read the report many be surprised at the extent to which it is critical of the medical schools; others may feel that it is not sufficiently critical. Little space has been taken in the report to call attention to or praise those features of the schools which deserve commendation. The survey was not designed to glorify the medical schools, and it has not done so.

Some may be disappointed that the survey does not blueprint a new philosophy or new program of medical education. Although such an approach might have been an interesting and stimulating one, the survey felt that its most useful approach would be to provide a glass into which each school could peer and ask itself which of the faults and failings of American medical education there mirrored are cast by its image. To a large degree the report of the survey has been successful in achieving this end, and the self-examination it is certain to stimulate in each school should lead to a very definite improvement in medical education in this country in the years immediately ahead.

As previously reported, a separate subcommittee was appointed by the survey to make a special study of preprofessional education as it relates to medicine. The report of this study which was supported by a grant from the John and Mary Markle Foundation, is now in press, and its publication later this fall is being eagerly awaited.[3]

First World Conference on Medical Education

This report is being written on the eve of the First World Conference on Medical Education to be held in London, Aug. 22-29, 1953, under the auspices of the World Medical Association. The holding of this conference bespeaks the growing recognition that medical education is of basic importance in all efforts to improve medical care and to advance medical knowledge. It also reflects the increasing extent to which thinking in medical education, as in medical science, is transcending national boundaries, with men from all parts of the world seeking to share experiences and knowledge with their colleagues in other countries.

Four fundamental subjects have been selected for discussion by representatives of medical schools from more than 40 countries. These subjects are (1) requirements for entry into medical schools; (2) aims and content of the medical curriculum; (3) techniques and methods of medical education, and (4) preventive and social medicine.

It is expected that the numerous representatives from the United States will not only contribute actively to the program of the Conference but will also benefit from the exchange of information, views, and philosophies concerning medical education as it is conducted in many other parts of the world. Arrangements have been made to have the proceedings of the conference published by the Oxford University Press.

Major Developments in the Medical Schools

Information of general interest concerning any major new developments during 1952-1953 was requested from the schools again this year. These data are reported under the headings of curricular changes, organization and administration, hospital affiliations, construction, and miscellaneous.

Revision, modification, or experimentation with the curriculum were reported by 16 schools. Medical educators will be especially interested in the radically new approach to undergraduate medical education that has been developed at Western Reserve University. Planning for this new program was begun in 1945 and the experiment has been subsidized by a grant totaling $728,000 given by the Commonwealth Fund. The objective is to provide a basic education that will prepare the student to become a family physician, specialist, teacher, or investigator. The unique features of the program are the methods by which correlated instruction is to be given in the biology of man, the principles of medicine, and care of the patient. Teaching is carried out by interdepartmental teaching committees in three phases, under the direction of a coordinator for each phase. The traditional departmental organization of teaching has therefore been abandoned and this policy is carried through to the laboratory phases of instruction. Instead of the usual departmental laboratories, each student is provided with his own laboratory where, throughout the year, he carries out all of his laboratory work.

Students are regarded as maturing individuals and as graduate students who are to be given increasing responsibility for their own education and free time in each year for the pursuit of elective studies.

The first class was enrolled in this program last fall, and this class will be graduated in 1956. While the first phase has been organized and activated, the second and third phases are not yet completely planned.

Phase 1, the first year, involves study of the normal biology of man, with a multi-disciplined approach to the study of organs and organ function rather than the usual study by separate disciplines. The biochemical activities of the body are stressed. In this phase students are also introduced to the normal infant, adult and family, and to the behavior of man as a member of society.

Phase 2, the second and third years, will emphasize the principles of medicine, prevention of disease, mechanisms of disease, and the natural history of disease. The approach will be from the standpoint of diseases of organs and systems instead of by the older division of teaching by separate special disciplines. A progressively increasing amount of clinical work will be introduced, with major emphasis on diagnosis and on the definition of the principles involved in the mechanisms of illness and of treatment.

Phase 3 will involve application of the material covered in the first two phases to the care of patients in the hospital and at home.

Space prohibits the presentation here of more than a bare outline of the background, the objectives, and the mechanics of this unique program. Those interested in a more detailed report are referred to a panel discussion by members of the medical faculty at Western Reserve, which is reported in the Proceedings of the Annual Congress on Medical Education and Licensure for 1953.

Other schools that reported curriculum changes or plans for such changes were Arkansas, Southern California, Indiana, Kansas, Louisville, Maryland, Harvard, Albany, New York Medical College, Cornell, Pennsylvania, Jefferson, Temple, South Carolina, and Southwestern. The general trends which have characterized postwar curriculum changes continued. Several schools reported programs designed to achieve integration of teaching of basic science subjects without regard for the traditional departmental lines. There were further reductions in the hours devoted to didactic teaching in the clinical years and substitution of increases in clinical clerkship assignments and in the time given to correlated clinical teaching. Several schools announced programs emphasizing comprehensive study of the patient through the development of general medical clinics, reduction in assignments to special clinics, and various types of family and home care plans. The new experimental course in comprehensive medicine at Cornell University is now in effect for all four classes.

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[3] Severinghaus, A. E.; Carman, H. J., and Cadbury, W. E., Jr.: Preparation for Medical Education in the Liberal Arts College, New York, McGraw-Hill Book Co., to be published.

Administrative or organizational changes were reported by several schools. Louisville established new research laboratories for the department of biochemistry, a research laboratory for the department of surgery, and a department of physical medicine and rehabilitation. At Syracuse, full-time departments of preventive medicine and psychiatry have been organized and partially staffed, and a full-time professor and head for the department of pediatrics has been appointed. Albany has also appointed a full-time head for pediatrics. At Oregon the medical faculty has assumed responsibility for operation of the state crippled children's program. Temple University reported appointment of additional full-time teachers in clinical departments and the establishment of a new research laboratory for the department of physiology. The University of Washington has developed a hospital extension service in connection with the chronic disease unit at King County Hospital and the senior clerkship program. This is an experimental program designed to test the effectiveness, for certain selected, chronically ill patients, of home care as compared with hospital care. This school has also inaugurated surgical and obstetrical clerkships utilizing private patients in several affiliated hospitals.

Important changes in their hospital relationships were reported by several schools. Boston University has a new affiliation with the Boston City Hospital that permits the medical school to appoint a director of pediatric teaching for the hospital and permits the dean, professor of pediatrics, and director of pediatric teaching to nominate all appointments to the pediatric staff. This school has developed an affiliation, under a dean's committee, for graduate training in surgery and medicine, at the Providence Veterans Administration Hospital. The affiliation for obstetrical teaching in the Malden Hospital has been discontinued. The gynecological and obstetrical service at the Boston City Hospital has been reorganized and a new affiliation developed that will allow the deans of the three Boston medical schools to nominate the person to be appointed to the newly created full-time position of director of the gynecological and obstetric service. This makes possible the development of a cooperative teaching program in which all three schools will participate. Indiana this year assumed additional teaching and service obligations at the LaRue D. Carter Psychiatric Hospital, located on the medical center campus, and has also assumed responsibility in connection with the Cold Spring Road Veterans Administration Hospital for Tuberculosis. The University of Louisville has assumed professional responsibility for a geriatric hospital recently established by the city. North Carolina opened its new teaching hospital last year, and Mississippi began construction of a university hospital in December. Albany has consummated a new agreement with the Albany General Hospital under the terms of which the hospital has agreed to underwrite the major share of the clinical budget of the medical college.

Capital expenditures of the medical schools have been reported for the past three years. Beginning with 1951-1952, the schools were asked to report separately the amounts spent for projects completed and amounts spent for projects initiated. In this report, as in last year's, an effort has been made to exclude figures and projects that were reported in previous years.

Projects costing a total of $8,206,082 were completed during the past year. New clinical facilities or additional clinical facilities were completed at Kansas, Michigan, and Wisconsin. Additional laboratory space was constructed or old quarters were remodeled at Western Reserve and Tennessee. Student dormitories and an alumni building were constructed at Meharry.

For new projects initiated during the past year, the schools spent a total of $34,394,005. New medical school buildings or additions to existing buildings were reported by Indiana, Louisiana State, Harvard, Missouri, Minnesota, Brooklyn, New York University, North Carolina, Western Reserve, Oregon, Tennessee, and Southwestern. New clinical facilities or the expansion or renovation of existing facilities were started at Alabama, George Washington, Missouri, Washington University, Nebraska, Rochester, and Oregon. Yale and Cornell began the construction of student residences, and Kansas began a continuation center and student union.

The total of $42,600,087 spent for projects initiated or completed during 1952-1953 brings the gross total of such expenditures, during the past four years, to more than $284,000,000. Totals of $81,640,735 were reported for 1951-1952, $60,000,000 for 1950-1951, and more than $100,000,000 for 1949-1950. The sharp decrease in expenditures during the past year follows the completion, by many schools, of extensive programs of rehabilitation and expansion. Although such expenditures in the years immediately ahead can scarcely be expected to match the unprecedented expenditures of the years immediately following the end of World War II, the data for capital programs initiated last year indicate that substantial new construction will continue for several years at least.

However, it is important to keep in mind that a high proportion of the expenditures that have been reported have been for hospitals and dispensaries that, in addition to their essential role in medical education, have another important role to play in providing medical service to the public. A considerable share of these expenditures could therefore legitimately be charged to medical service rather than to medical education. Furthermore, the fact that many schools have been fortunate enough in recent years to acquire splendid new facilities should not obscure the fact that the needs of many schools have been only partially met. There remain a number of schools that are struggling under the handicap of seriously inadequate facilities for basic science teaching and shortages of facilities for research in the basic and the clinical sciences.

Several additional developments were important. Stanford University has received gifts, for the medical school, totaling $1,218,000 and North Carolina has received a grant of $160,000 from the Commonwealth Fund for support of a general outpatient clinic for two and a half years. The facilities of the Medical Center of the Medical College of Alabama have been surveyed by the Infantile Paralysis Foundation, Inc., and the foundation will supply funds for the hospitalization of certain patients with poliomyelitis.

Financial Support of Medical Schools

For the seventh successive year the medical schools report a major increase in the funds available to them for their operations. For the academic year 1953-1954, the budgets of the medical and basic science schools in the United States total approximately $87,409,000. This sum represents an increase of $6,524,000 in the past year and an increase of $13,059,000 in the past two years. During the seven year period that these figures have been compiled, the budgets of the medical schools have been increased by more than $39,524,000.

The total of $87,409,000 does not include research grants and special teaching grants from outside agencies or any significant portion of the cost of operating the teaching hospitals owned by or affiliated with the medical schools. It does include a total of approximately $3,475,000 that the medical schools will spend for certain activities in their teaching hospitals. This sum, which is approximately the same as in the previous year, is largely made up of salaries of professional and technical personnel on hospital staffs, the cost of operating special laboratories, and in a few instances contributions to the operating budgets of hospitals and dispensaries used by the medical schools for teaching purposes.

As in previous years, no attempt has been made to compute the direct and frequently very substantial contributions that a number of teaching hospitals make to the educational programs of their affiliated medical schools or to estimate the value of the services contributed by the large number of unpaid members of the teaching staffs of the medical schools. Where a charge for general university administration has been made against a medical school, this charge has been subtracted. Also not included are the cost of operating the medical library and the cost of plant maintenance in two schools and a variety of items, which total slightly more than $1,400,000, for minor structural alterations, postgraduate education, special institutes, and other activities not included in the regular medical school budgets. The costs of new major construction has also been eliminated from the above total. As already noted in the section on major developments in the medical schools, the schools during the past year were engaged in constructing new facilities of various types costing about $42,600,087.

The schools estimate that receipts from tuition and other fees during the coming year will total $18,041,000, or 20.6%, of their budget. Last year tuition fees provided $17,400,000 or 21.5% of the schools' budgets. The number of schools unable to match student fees dollar for dollar with funds from nonstudent sources in their basic budgets increased from six to seven. In at least two of these schools the situation is not so unfavorable as the figures would suggest, since in each instance hospital funds that do not appear in the medical school budget provide support for comparatively large full time clinical faculties.

The median budget of the four year medical schools for the coming year will be $1,040,000. Thirty-seven schools as compared to 33 last year and 30 the year before report budgets of over a million dollars for the coming year. Eleven of these schools will have budgets of over 2 million dollars. Last year six schools were in this category. Only six of the four year schools as compared with 11 last year report budgets of less than $500,000. Of these, two have budgets of less than $400,000.

In addition to the funds discussed in the foregoing paragraphs, the schools have estimated that during the academic year 1953-1954 they will receive from outside agencies a total of $38,200,000 in grants for research and $5,300,000 in grants for special teaching activities. Funds received in these categories last year totaled $40,100,000 and $5,534,000. Past experience has shown that the total amount received in grants usually exceeds substantially the amount that the schools estimate in advance, so that the foregoing figures should not be interpreted as indicating that the schools face a reduction in the amount of money they will receive in the form of research and teaching grants during the coming academic year.

In 1952-1953 all schools received funds in both of these categories. Among the four year schools the range in grants for research varied from $13,000 to $4,150,000. Twelve schools received more than one million dollars in grants for research and 14 other schools received between $500,000 and a million dollars. Last year the schools in these categories numbered 12 and 10 respectively.

TABLE 1.—*Recapitulation of Estimated Funds Available to Medical Schools, 1953-1954*

Funds for Construction and Operation of Major Clinical Facilities Not Included

Budgeted funds and appropriations	$ 87,409,000
Funds for miscellaneous projects	1,400,000
Research grants from outside agencies	38,200,000
Teaching grants from outside agencies	5,300,000
	$132,309,000

Table 1 recapitulates the funds that the medical schools will expend during the coming academic year in support of their activities exclusive of new construction and the operation of major clinical facilities. As emphasized in previous reports, it is important that it be understood that the total of $132,309,000 shown in the table will support many activities in addition to the instruction of undergraduate medical students. As is clearly demonstrated in the report of the Survey of Medical Education, a modern medical school conducts a broad program of instruction, research, and service. Tables 12 and 14 indicate the extent to which the medical schools are providing directly for the educational needs of large numbers of other students in addition to undergraduate medical students. Almost one-third of the total sum that will be expended by the medical schools next year is definitely earmarked for research and a smaller portion for the support of clinical services. Additional direct and indirect support of research and clinical services will undoubtedly be provided by the basic budgets of many medical schools, although the actual amount cannot be estimated.

Despite the steady increase in funds that have been made available to the medical schools in the past seven years, medical educators, pointing to the continuing inflation and the continuing demands that are being placed on the medical schools for more research, more service, and the expansion of their student bodies, have indicated that many schools are still operating under serious financial pressures. Faculty salaries by and large have not kept pace with the rising cost of living, and many schools have expressed real concern over their ability to hold their present faculties and even more concern over their ability to recruit able young teachers.

It is difficult at this time to estimate accurately the total current needs of the medical schools for additional operating funds. An intensive study of this problem has just been initiated by the Council on Medical Education and Hospitals and the Association of American Medical Colleges. The results of this study should be available late this year or early in 1954.

The last comprehensive study of this problem was made by the Surgeon General's Committee on Medical School Grants and Finances, which reported that, on the basis of figures compiled for the year 1947-1948, the schools needed an additional 40 million dollars. Since that time the sum of the funds available to the medical schools annually has increased by approximately $51,500,000. However, when consideration is given to the increase in costs and the expansion of the schools' activities in the interval, it is clear that this increase is not all net gain. Seven schools continue to operate on total budgets of less than $500,000. The persistent difficulty several of these schools are encountering in their efforts to secure more adequate support raises a question as to whether the universities or groups sponsoring these particular schools are in a position to continue to assume the responsibilities involved in the conduct of a modern medical school.

The National Fund for Medical Education and the American Medical Education Foundation

The last two Educational Numbers have included brief reports of the activities of the National Fund for Medical Education and the American Medical Education Foundation, two closely associated organizations engaged in raising unrestricted funds annually on a national basis to assist the medical schools in securing more adequate financial support.

In July, 1953, these organizations in their fourth series of grants distributed a total of $1,944,151.64 to the schools for use during the coming academic year. This latest sum increases to over $4,750,000 the total assistance provided the medical schools by these two organizations since the first grants were made in July, 1951. Both organizations are intensifying their activities, with the strong hope that through their combined efforts they will shortly be able to provide the medical schools with at least 10 million dollars annually to aid in meeting the operational costs of their educational programs.

Medical Education and National Defense

Since the onset of war in Korea, the Joint Committee on Medical Education in Time of National Emergency, representing the Council on Medical Education and Hospitals and the Association of American Medical Colleges, has collaborated closely with the Department of Defense, the Armed Forces, the Selective Service System, the Public Health Service, the Civil Defense Administration, and other governmental agencies in dealing with problems created for medical education by the defense needs of the country. This coordination of effort has been of material assistance in the development of programs and policies designed to cope with these problems. As a result, the needs of the armed forces for medical personnel have been met and at the same time the medical schools have been able to fulfill their other obligations to the nation by supplying an increasing flow of well-trained physicians.

The joint committee early recognized the need for long range plans to meet the medical requirements of the military and of civil defense and suggested that the medical curriculum be revised to give proper emphasis to subjects of importance to military medicine and other fields vital to national defense. The joint committee therefore appointed in November, 1950, a subcommittee on curriculum under the chairmanship of Dr. Stanley W. Olson to recommend appropriate changes in the medical curriculum. This committee, in consultation with representatives of the armed forces and the Public Health Service prepared and submitted to the joint committee an outline of the subject material of importance to military medicine and civil defense.[4] They recommended that this material be covered in already established courses rather than by new courses inserted in already crowded curriculums.

During the past year the Subcommittee on Medical Education for National Defense, in collaboration with representatives of the Department of Defense, the Public Health Service, and the Civil Defense Administration, has developed experimental programs designed to emphasize the aspects of medicine necessary to national defense and to interpret in constructive fashion, for the undergraduate medical student, his responsibilities for military service and his role in civil defense. Five medical schools were selected for the initial experiment: Buffalo, Cornell, Illinois, Vanderbilt, and California. Financing for the programs was provided by a grant of $75,000 obtained through the armed forces and the Armed Forces Medical Policy Council. Each of the institutions involved in the experiment appointed a coordinator who was instructed to use his own judgment in selecting what seemed to be the best means of implementing the new program in his own school.

In the past, instruction in military medicine was given at the undergraduate level largely through R. O. T. C. and reserve officer courses, which unduly emphasized military organization and administration. The present programs are based on the premise that instruction in military organization is better learned in the military setting; the medical school can make its best contribution to defense by thoroughly indoctrinating the student in fundamental principles of medicine, with appropriate emphasis on the application of those principles to military and civil disaster situations. In this way, education for defense should not interfere with the basic education of undergraduate students and can actually serve to enhance it.

The governmental agencies have made invaluable contributions to the success of these programs not only by financial support and by the participation of their representatives in planning conferences but also by sponsoring special conferences for faculty members and by supplying information, films, and other teaching materials.

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[4] Suggestions for Supplementing the Medical Curriculum in Time of National Emergency, Report of the Joint Committee on Medical Education in Time of National Emergency, February, 1951.

The methods used by the five schools varied considerably. At California, Illinois, and Vanderbilt, the major emphasis was on instruction given to the first year class; at Buffalo and Cornell programs were instituted simultaneously for all four classes. At California the material was given as a separate course, Cornell and Vanderbilt incorporated the subject matter into existing courses, while Buffalo and Illinois combined the two approaches. Each school has prepared and submitted to the subcommittee a report of its first year's experience.

Reception of the new programs by both students and faculty has been excellent. Faculty interest has been significantly stimulated as a result of participation of faculty members in a series of special conferences, sponsored by the National Research Council, the Armed Forces Institute of Pathology and the Army Medical Service Graduate School, on problems of special importance in military medicine. The subjects for the six conferences were shock, forensic pathology, stress, biological warfare, leptospiral diseases, and problems of blood transfusion in the severely wounded. These conferences served to emphasize that information drawn from military medicine is valuable to those engaged in dealing with the problems of civilian defense and civilian disaster.

Since the experiments of this first year have been considered by the subcommittee, and by the government representatives concerned, to be signally successful, and because of the continuing demands of national defense programs, the subcommittee has recommended that, as rapidly as possible, opportunity to participate in the program be offered, on a voluntary basis, to other schools. The experience of the past year indicates that each participating school will need a grant of about $15,000 for the employment of a coordinator and to defray other expenses incurred in the program. At this date, it is not yet known whether such grants will be made available by the Department of Defense to other schools wishing to participate in the program.

SELECTIVE SERVICE SYSTEM

Responsibility for the primary classification of registrants rests with the Selective Service local boards. If a person or his employer (college, medical school, or hospital) has requested his deferment and he has been classified as available for military service, then the person or his employer may, within 10 days of the mailing of the classification notice, file an appeal. Should the state appeal board sustain the classification, the registrant or his employer may, if there is a dissenting vote in the appeal board, file a written request with the local board to have the decision appealed to the National Selective Service Appeal Board. If there is no dissenting vote, the state or national director of selective service may appeal the case to the President.

The College Student Certificate (SSS Form 109) has been prescribed for the use of institutions of higher learning including those of medicine, in furnishing to the local boards information regarding registrants who are enrolled as students in those institutions. These forms should be submitted to the local boards by the educational institution on request of the registrant. However, the mere filing of such a form does not constitute a request for occupational deferment since, in order to establish the right of appeal as an interested party, a written request from the college or employer for occupational deferment must accompany the form. The registrant has the right of appeal if exercised in the prescribed 10 days. He can make his appeal informally in writing.

Eligibility for Consideration for Deferment.—The law states that the President may provide for the deferment of any person whose deferment is equitable and in the national interest. He is also informed that it is the sense of the Congress that provision should be made for the annual deferment from training and service of premedical, predental, and allied preprofessional students in numbers equal to those at present in attendance at colleges and universities. This is being provided in the general student deferment program. The President is also directed to establish a National Advisory Committee to advise the Selective Service System and aid state and local advisory boards in selecting the needed medical, dental, and allied personnel.

The conditions under which students pursuing programs of higher education may be considered for deferment are specified in sections 1622.15 and 1622.25 of the Selective Service regulations. Within the specified requirements, students of the healing arts are to be considered for deferment in the same manner as students pursuing other undergraduate or graduate courses at colleges, universities, etc.

Any student not previously deferred who is pursuing a full time course of study is entitled to a single period of statutory deferment (Class I-S) until the end of the academic year. Such deferment does not preclude the possibility of his later deferment in Class II-S. Students whose activity in study, research, medical, or other endeavors is found necessary to maintenance of the national health, safety, or interest may be deferred in Class II-S until completion of their training, provided they maintain satisfactory scholastic records. A student who is deferred for study extends his liability for military training and service up to his 35th birthday instead of his 26th, as prescribed for registrants who have never enjoyed a deferment.

In selecting a student for deferment in Class II-S the Selective Service local boards may, at their discretion, be guided either by the score made by the student on the Selective Service College Qualification Test or by his record of academic performance.

The College Qualification Test is given for the Selective Service System by the Educational Testing Service of Princeton, New Jersey. At present, in order to be eligible for deferment on the basis of this test, an undergraduate student must make a score of 70 or more. SSS Form 108 has been prescribed for furnishing to the local board the score made on the test. This score is confidential and may be divulged by the local board only to the registrant or one holding his written consent.

To qualify for deferment on the basis of academic performance, the nonprofessional student must have maintained the following standing among the male members of his class: freshman year, upper one-half;

sophomore year, upper two-thirds; junior year, upper three-fourths.

By Selective Service Regulations a student accepted in medical school on or before July 1, 1951, and who is satisfactorily pursuing full time courses of study may be deferred without consideration of class standing or the Selective Service qualification test if the college certifies him as a full time student satisfactorily pursuing his courses.

A student accepted for admission to medical school after July 1, 1951, for the class next commencing may be deferred provided that during his last full time year at a college or university he was ranked among the upper one-half of the male members of his class or had a score of 70 or more on the Selective Service College Qualification Test. A student admitted to a graduate school before July 1, 1951, who is pursuing a full time course of study may be deferred provided he is meeting degree requirements. A student accepted for admission by a graduate school after July 1, 1951, as a full time student for the class next commencing may be deferred provided in his last full time academic year in a college or university he achieves a scholastic standing among the upper one-half of the male members of his class or scored 75 or more on the qualification test, and provided the graduate school certifies that he is meeting the degree requirements.

Decisions concerning deferment of American students enrolled in foreign universities, including medical students, are the responsibility of the local boards. The local board may accept or reject any claims or evidence presented for deferment.

Interns and Residents.—The Selective Service System has always recommended the deferment of graduates of medicine to complete one year of internship training. No statement of policy has been issued by the national headquarters of the Selective Service System with respect to residents or second year interns.

The National Advisory Committee to the Selective Service System has indicated that all physicians in priorities 1 and 2 will be needed by the armed forces and has advised that they apply for commissions about the time of completion of their internships. A few persons in these categories may be recommended for deferment by the Selective Service Local Boards for teaching, research, or public health service or because they are rendering essential service in isolated communities and cannot be replaced.

In addition, the only persons in this group who can justifiably be recommended for deferment are those who are accepted for training in the scarcity specialties and whose services are required to meet essential needs of medical and dental schools or hospital services. The specialties in which critical shortages exist are anesthesiology, physical medicine and rehabilitation, psychiatry, radiology, neurology, pathology, public health, orthopedic surgery, oral surgery, and the basic medical sciences. Those few persons in these groups for whom deferment is necessary may be deferred in class 2-A by the Selective Service local board. The recommendation of the advisory groups in all such cases is desirable.

Faculty Members.—A majority of the faculty members of medical schools are under age 50 and, therefore, are required to register with the Selective Service System as required under Public Law 779. No policy has been announced by Selective Service on the granting of deferment to faculty members. However, the National Advisory Committee has recommended that, as a general policy, essential members of medical, dental, and veterinary medical faculties be held in their teaching positions rather than be released for military service. This recommendation applies especially to men in the basic science departments and includes persons in priorities 1 and 2. This policy is not a blanket recommendation for deferment from military service for all teachers. Part time teachers who devote only a small part of their time to teaching, and certain of the younger full time teachers in priorities 1 and 2 will be expected to enter the military services.

THE DOCTOR DRAFT LAW OF 1953

Public Law 84, 83rd Congress, approved by the President June 29, 1953, amended the Universal Military Training and Service Act. It, and the previous amendment, Public Law 779, 81st Congress, are known as "The Doctor Draft Law."

The effective date of the whole Universal Military Training and Service Act, as now amended, is extended to July 1, 1955. No change was made in the age limit prescribed in the previous amendments which required that all physicians, dentists and allied specialists, under the age of 50, must register with their Selective Service local boards, when required to do so by proclamation of the President. These special registrants remain liable for induction up to the age of 51. Therefore, all new medical graduates under the age of 50 must register with their Selective Service local boards as physicians, regardless of any previous registration, within five days of the receipt of the degree of Doctor of Medicine. When the degree is not granted until the completion of an internship, this special registration is accordingly deferred.

As under previous provisions of the act, registrants will be arranged in four priorities signifying the order of induction. However, the criteria for such an arrangement under these priorities have been modified. The major changes enacted by the new amendment are those which provide for greater recognition of prior military service. A registrant will now receive credit for all service performed either as an officer, or as an enlisted man, since Sept. 16, 1940, regardless of whether it was before or after participation in an AST or V-12 program, or deferment by the Selective Service System for professional education prior to March 31, 1947. Also recognition is given for military service performed in the armed forces of a country allied with the United States prior to Sept. 2, 1945, while so allied.

Whereas formerly physicians who were educated in part, or in whole, at government expense, or were deferred by the Selective Service System while completing their professional education, needed 21 months of service to qualify for arrangement in priority 4, they now need only 17 months. As the result of this change, a number of physicians formerly in priorities 1 and 2 will be rearranged in priority 4. The periods of service for men called to active duty or inducted under the new law were

TABLE 2.—*Approved Medical Schools in the United States*

	Name and Location of School	1954 Premedical Requirement by Years	Students by Classes, 1952-1953						Graduates July 1, 1952 to June 30, 1953	Executive Officer	
			Freshman	Sophomore	Junior	Senior	Required Intern Year	Totals**			
	ALABAMA										
1	Medical College of Alabama, Birmingham	3	80	78	59	54	..	271	54	James J. Durrett, M.D., Dean	1
	ARKANSAS										
2	University of Arkansas School of Medicine, Little Rock	3	90	83	73	78	..	324	78	Hayden C. Nicholson, M.D., Dean	2
	CALIFORNIA										
3	College of Medical Evangelists, Loma Linda-Los Angeles	3	96	95	93	93	98	377	191 †	Walter E. Macpherson, M.D., Pres., Los Angeles; Harold Shryock, M.D., Dean, Loma Linda	3
4	University of Southern California School of Medicine, Los Angeles	3	68	65	70	72	67	275	67	Gordon E. Goodhart, M.D., Dean	4
5	Stanford University School of Medicine, Stanford-San Francisco	3	62	61	58	62	62	243	62	Windsor Cooper Cutting, M.D., Acting Dean	5
6	University of California School of Medicine, San Francisco	3	77	76	76	72	..	301	72	Francis Scott Smyth, M.D., Dean	6
	COLORADO										
7	University of Colorado School of Medicine, Denver	3	80	77	82	74	..	313	73	Francis R. Manlove, M.D., Director of the Medical Center; Robert C. Lewis, Ph.D., Dean, School of Medicine	7
	CONNECTICUT										
8	Yale University School of Medicine, New Haven	3	79	81	65	65	..	290	64	Vernon Lippard, M.D., Dean	8
	DISTRICT OF COLUMBIA										
9	Georgetown University School of Medicine, Washington	Degree*	124	111	110	96	..	441	95	Francis M. Forster, M.D., Dean; Rev. Thomas J. O'Donnell, S.J., Regent and Dean of Students	9
10	George Washington University School of Medicine, Washington	3	95	83	77	92	..	347	92	Walter A. Bloedorn, M.D., Dean	10
11	Howard University College of Medicine, Washington	4	79	72	71	67	..	289	67	Joseph L. Johnson, M.D., Dean	11
	GEORGIA										
12	Emory University School of Medicine, Atlanta	3	72	70	71	73	..	286	73	Richard Hugh Wood, M.D., Dean	12
13	Medical College of Georgia, Augusta	3	80	79	74	81	..	314	81	Edgar R. Pund, M.D., President	13
	ILLINOIS										
14	Chicago Medical School	4	75	67	69	69	65	280	63	John J. Sheinin, M.D., President; F. J. Mullin, Ph.D., Dean of Faculty	14
15	Northwestern University Medical School, Chicago	3	130	126	137	129	..	522	130	Richard H. Young, M.D., Dean	15
16	Stritch School of Medicine of Loyola University, Chicago	3	88	82	84	80	..	334	80	John F. Sheehan, M.D., Dean	16
17	University of Chicago, The School of Medicine	3	72	71	72	66	..	281	67	Lowell T. Coggeshall, M.D., Dean, Division of Biological Sciences; Joseph J. Ceithaml, Ph.D., Dean of Students	17
18	University of Illinois College of Medicine, Chicago	3	168	166	170	174	..	678	174	Roger A. Harvey, M.D., Acting Dean	18
	INDIANA										
19	Indiana University School of Medicine, Bloomington-Indianapolis	3	151	142	136	139	..	568	134	John D. Van Nuys, M.D., Dean, Indianapolis	19
	IOWA										
20	State University of Iowa College of Medicine, Iowa City	3	121	111	116	105	..	453	103	Norman B. Nelson, M.D., Dean	20
	KANSAS										
21	University of Kansas School of Medicine, Lawrence-Kansas City	3	120	117	110	103	..	450	103	W. Clark Wescoe, M.D., Dean	21
	KENTUCKY										
22	University of Louisville School of Medicine, Louisville	3	101	91	93	100	..	385	100	J. Murray Kinsman, M.D., Dean	22
	LOUISIANA										
23	Louisiana State University School of Medicine, New Orleans	3	124	120	108	105	..	457	105	William W. Frye, M.D., Dean	23
24	Tulane University of Louisiana School of Medicine, New Orleans	3	133	125	128	128	..	514	128	M. E. Lapham, M.D., Dean	24
	MARYLAND										
25	Johns Hopkins University School of Medicine, Baltimore	Degree	75	66	77	76	..	294	76	Philip Bard, Ph.D., Dean	25
26	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore	3	104	101	98	92	..	395	92	H. Boyd Wylie, M.D., Dean	26
	MASSACHUSETTS										
27	Boston University School of Medicine, Boston	3	73	69	65	71	..	278	72	James M. Faulkner, M.D., Dean	27
28	Harvard Medical School, Boston	2	118	114	149	148	..	529	148	George Packer Berry, M.D., Dean	28
29	Tufts College Medical School, Boston	4 (Degree)	115	116	109	98	..	438	100	Joseph M. Hayman Jr., M.D., Dean	29
	MICHIGAN										
30	University of Michigan Medical School, Ann Arbor	3	203	188	153	139	..	683	137	A. C. Furstenberg, M.D., Dean	30
31	Wayne University College of Medicine, Detroit	3	70	74	65	59	..	268	59	Gordon H. Scott, Ph.D., Dean	31
	MINNESOTA										
32	University of Minnesota Medical School, Minneapolis	3	129	122	134	114	115	499	232 †	Harold S. Diehl, M.D., Dean of Medical Sciences	32

	MISSOURI										
33	St. Louis University School of Medicine, St. Louis	3	128	121	131	119	..	499	116	James W. Colbert Jr., M.D., Dean	33
34	Washington University School of Medicine, St. Louis	3	86	84	99	95	..	364	95	Robert A. Moore, M.D., Dean	34
	NEBRASKA										
35	Creighton University School of Medicine, Omaha	3	76	73	72	77	..	298	76	F. G. Gillick, M.D., Dean	35
36	University of Nebraska College of Medicine, Omaha	3	87	76	95	86	..	344	87	James P. Tollman, M.D., Dean	36
	NEW YORK										
37	Albany Medical College, Albany	3	52	55	58	50	..	215	47	Harold C. Wiggers, Ph.D., Dean	37
38	University of Buffalo School of Medicine, Buffalo	4	72	72	70	60	..	274	59	Stockton Kimball, M.D., Dean	38
39	Columbia University College of Physicians and Surgeons, New York	3	120	114	113	116	..	463	116	Willard C. Rappleye, M.D., Dean	39
40	Cornell University Medical College, New York	3 and Degree	86	83	85	84	..	338	84	Dayton J. Edward, Ph.D., Acting Dean	40
41	New York Medical College, Flower and Fifth Avenue Hospitals, New York	Degree	129	130	113	121	..	493	121	J. A. W. Hetrick, M.D., President, Ralph E. Snyder, M.D., Executive Dean	41
42	New York University College of Medicine, New York	3	143	134	124	128	..	529	127	Currier McEwen, M.D., Dean	42
43	State University of New York College of *Medicine* at New York City	3	151	140	159	140	..	590	140	Jean A. Curran, M.D., Dean	43
44	University of Rochester School of Medicine and Dentistry	3	71	72	67	65	..	275	64	*Donald G. Anderson*, M.D., Dean	44
45	State University of New York at Syracuse College of Medicine	3	77	72	68	61	..	278	61	William R. Willard, M.D., Dean	45
	NORTH CAROLINA										
46	Duke University School of Medicine, Durham	3	78	79	78	80	..	315	85	Wilburt C. Davison, M.D., Dean	46
47	Bowman Gray School of Medicine of Wake Forest College, Winston-Salem	3	53	50	51	52	..	206	52	C. C. Carpenter, M.D., Dean	47
	OHIO										
48	University of Cincinnati College of Medicine, Cincinnati	3	90	85	90	89	..	351	89	Stanley E. Dorst, M.D., Dean	48
49	Western Reserve University School of Medicine, Cleveland	3	78	83	85	78	..	324	78	Joseph T. Wearn, M.D., Dean	49
50	Ohio State University College of Medicine, Columbus	3	150	141	141	84	..	516	84	Charles A. Doan, M.D., Dean	50
	OKLAHOMA										
51	University of *Oklahoma School of Medicine*, Oklahoma City	3	100	101	82	78	..	361	78	Mark R. Everett, Ph.D., Dean	51
	OREGON										
52	University of Oregon Medical School, Portland	8	78	74	55	67	..	274	71	D. W. E. Baird, M.D., Dean	52
	PENNSYLVANIA										
53	Hahnemann Medical College and Hospital of Philadelphia	3	*105*	*99*	*98*	*84*	..	*385*	*83*	*Charles L. Brown, M.D., Dean*	*53*
54	Jefferson Medical College of Philadelphia	3	170	167	164	161	..	662	160	George Allen Bennett, M.D., Dean	54
55	Temple University School of Medicine, Philadelphia	3	133	122	131	122	..	508	122	William N. Parkinson, M.D., Vice President and Dean	55
56	University of Pennsylvania School of Medicine, Philadelphia	3	127	127	128	129	..	511	129	John McK. Mitchell, M.D., Dean	56
57	Woman's Medical College of Pennsylvania, Philadelphia	4	50	45	42	46	..	183	46	Marion Fay, Ph.D., Dean	57
58	University of Pittsburgh School of Medicine, Pittsburgh	3	100	91	98	100	..	389	99	William S. McEllroy, M.D., *Dean*	58
	SOUTH CAROLINA										
59	Medical College of South Carolina, Charleston	3	79	69	55	57	..	260	57	Kenneth Lynch, M.D., President; John T. Cuttino, M.D., Dean	59
	TENNESSEE										
60	University of Tennessee College of Medicine, Memphis	3	216	182	159	156	..	713	155	O. W. Hyman, Ph.D., Vice President and Dean	60
61	Meharry Medical College, Nashville	3	65	65	68	61	..	259	60	Harold D. West, Ph.D., President; Daniel T. Rolfe, M.D., Dean	61
62	Vanderbilt University School of Medicine, Nashville	3 and Degree	53	47	56	51	..	206	51	John B. Youmans; M.D., Dean	62
	TEXAS										
63	Southwestern Medical School of The University of Texas, Dallas	3	101	97	103	98	..	399	98	George Aagaard, M.D., Dean	63
64	University of Texas School of Medicine, Galveston	3	165	157	136	137	..	595	138	Chauncey D. Leake, Ph.D., Director; D. Bailey Calvin, Ph.D., Dean of Students and Curricular Affairs	64
65	Baylor University College of Medicine, Houston	3	95	95	87	88	..	365	88	Stanley Olson, M.D., Dean	65
	UTAH										
66	University of Utah School of Medicine, Salt Lake City	3	54	52	47	28	..	181	28	John Z. Bowers, M.D., Dean	66
	VERMONT										
67	University of Vermont College of Medicine, Burlington	3	51	48	43	42	..	184	42	George A. Wolf, M.D., Dean	67
	VIRGINIA										
68	University of Virginia Department of Medicine, Charlottesville	3	76	67	72	71	..	286	70	Thomas H. Hunter, M.D., Dean	68
69	Medical College of Virginia, Richmond	3	84	80	103	99	..	366	100	John B. Truslow, M.D., Dean	69
	WASHINGTON										
70	University of Washington School of Medicine, Seattle	3	76	69	69	72	..	284	72	James W. *Haviland, M.D., Acting Dean*	70
	WISCONSIN										
71	University of Wisconsin Medical School, Madison	3	83	81	82	76	..	322	76	William S. Middleton, M.D., Dean	71
72	Marquette University School of Medicine, Milwaukee	3	100	98	99	93	..	390	92	John S. Hirschboeck, M.D., Dean	72
	Totals		7,140	6,795	6,725	6,475	407	27,135	6,668		

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* Ninety semester hours for veterans.

** Intern enrolment not included in total column.

† Figures represent two classes. Intern year requirement discontinued.

also revised. Those with 9 months or less of service must serve 24 months. Those with 9 to 12 months will serve 21 months. Those with 12 to 15 months service will serve 18 months, and those with 15 to 21 months service will serve 15 months. Those physicians in priority 4 who have had 21 months or more of service since Sept. 16, 1940, are no longer liable for induction or recall to duty, except in time of war or national emergency declared by Congress.

TABLE 3.—*Approved Medical Schools in Canada*

	Name and Location of School	1954 Premedical Requirement by Years	Students by Classes—1952-1953								Totals	Graduates, July 1, 1952 to June 30, 1953	Executive Officer	
			First Premedical Year	Second Premedical Year	Freshman	Sophomore	Junior	Senior	Additional Year	Required Intern Year*				
	ALBERTA													
1	University of Alberta Faculty of Medicine, Edmonton......	3	...	...	60	52	66	53	..	..	231	52	John W. Scott, M.D., Dean...	1
	MANITOBA													
2	University of Manitoba Faculty of Medicine, Winnipeg........	3	...	...	73	61	78	61	..	69	273	72	Lennox G. Bell, M.D., Dean..	2
	NOVA SCOTIA													
3	Dalhousie University Faculty of Medicine, Halifax.........	2	...	...	59	53	50	54	..	56	216	56	H. G. Grant, M.D., Dean......	3
	ONTARIO													
4	Queen's University Faculty of Medicine, Kingston	2†	63	...	61	64	59	57	57	..	361	57	G. Harold Ettinger, M.D., Dean	4
5	University of Ottawa Faculty of Medicine, Ottawa..........	2†	43	...	63	52	47	46	..	48	251	52	A. L. Richard, M.D., Dean....	5
6	University of Western Ontario Faculty of Medicine, London	3	...	...	60	58	60	60	..	..	238	62	J. B. Collip, M.D., Dean......	6
7	University of Toronto Faculty of Medicine, Toronto.........	2†	127	120	156	149	161	170	..	..	883	162	J. A. MacFarlane, M.B., Dean	7
	QUEBEC													
8	McGill University Faculty of Medicine, Montreal	3	...	...	108	106	111	117	..	..	442	115	C. Lyman Duff, M.D., Dean..	8
9	University of Montreal Faculty of Medicine, Montreal........	4	...	...	121	98	98	97	..	93	414	89	Wilbrod Bonin, M.D., Dean...	9
10	Laval University Faculty of Medicine, Quebec	4	119	...	125	87	135	137	..	110	603	108	Charles Vézina, M.D., Dean....	10
	Totals....................		352	120	886	780	865	852	57	376	3,912	825		

* Intern enrollment not included in total column.
† Grade XIII Honor Matriculation.

TABLE 4.—*Approved Schools of the Basic Medical Sciences in the United States and Canada*

	Name and Location of School	1954 Premedical Requirement by Years	Students by Classes, 1952-1953		Total	Executive Officer	
			Freshman	Sophomore			
	UNITED STATES						
	MISSISSIPPI						
1	University of Mississippi School of Medicine, University..................	3	27 28 } 55	27 27 } 54	109	David S. Pankratz, M.D., Dean......	1
	MISSOURI						
2	University of Missouri School of Medicine, Columbia......................	3	44	39	83	Roscoe L. Pullen, M.D., Dean........	2
	NEW HAMPSHIRE						
3	Dartmouth Medical School, Hanover..	3 and Degree	24	24	48	Rolf C. Syvertsen, M.D., Dean.......	3
	NORTH CAROLINA						
4	University of North Carolina School of Medicine, Chapel Hill *...........	3	60	58	118	W. Reece Berryhill, M.D., Dean.......	4
	NORTH DAKOTA						
5	University of North Dakota School of Medicine, Grand Forks............	3	40	32	72	Theo. H. Harwood, M.D., Dean.......	5
	SOUTH DAKOTA						
6	University of South Dakota School of Medical Sciences, Vermillion.......	3	30	33	63	W. L. Hard, Ph.D., Dean............	6
	WEST VIRGINIA						
7	West Virginia University School of Medicine, Morgantown...............	3	32	28	60	Edward J. Van Liere, M.D., Dean....	7
	Totals		285	268	553		
	CANADA						
	SASKATCHEWAN						
8	University of Saskatchewan School of Medical Sciences, Saskatoon.......	2	32	29	61	J. Wendell Macleod, M.D., Dean......	8
	Totals	..	32	29	61		
	Grand Totals	..	317	297	614		

* Expanded to four year medical school. Enrollment for third year class in 1952-1953 was 48.

"Active service" and "active duty" are defined as: full time duty since Sept. 16, 1940 in the service of the United States Army, Navy, Marine Corps, Coast Guard, or Public Health Service, including reserve components; time spent during World War II, by conscientious objectors, in work of national importance; service performed before Sept. 2, 1945 in armed forces of countries which were allies of the United States during World War II; service performed as a physician or dentist employed by the Panama Canal Health Department between Sept. 16, 1940, and Sept. 2, 1945.

Specifically excluded from consideration as "active service" is time spent in V-12 or AST programs, in military internships, residencies or senior student programs, time spent in military service for the sole purpose of undergoing physical examination, and training entered into after June 29, 1953.

The law continues to permit the deferment of those persons whose activities are essential to the national health, safety, or interest.

It is the duty of the National Advisory Committee and the voluntary state and local committees of the Selective Service System to make recommendations to the Selective Service System concerning the essentiality or availability of special registrants who are being classified by their local boards. This duty includes recommendations concerning residents, faculty members, and those engaged in essential laboratory and clinical research.

Korean "G. I. Bill"

A detailed analysis of the Korean "G. I. Bill" (Public Law 550, 2nd Session, 82nd Congress) was presented in last year's Educational Number. It may be expected that an increasing number of veterans will utilize the benefits provided by this law to obtain their premedical or medical education. Likewise, many physician veterans on their release from service will undoubtedly take additional graduate education under the provisions of the law. The Veterans Administration has ruled that both internships and residencies will be classified as institutional type training for the purpose of this law. This ruling corrects the unsatisfactory situation existing under the original "G. I. Bill," whereby internships and general practice residencies were treated as on-the-job training and residencies in the specialties were classified as institutional programs.

Approved Medical Schools

The 72 medical schools in the United States that are approved by the Council on Medical Education and Hospitals are listed in table 2; the 10 approved Canadian schools are named in table 3. The 8 approved schools of the basic medical sciences in the United States and Canada are listed in table 4. There has been no change in the lists since the publication of the 1952 Educational Number.

These tables give the number of years of premedical training that each school will require of freshmen entering in 1954. They also list the number of students enrolled in each class for the academic year 1952-1953, the number of students enrolled in internships that are a part of the degree requirement, and the number of students graduated by each school from July 1, 1952, to June 30, 1953. For the Canadian schools enrollments are given for premedical students, students enrolled in a fifth medical year, and those in a required intern year.

The name of the dean or executive officer appears opposite the name of each school. Changes in the chief executive officers have been made by 17 of the 90 medical and basic science schools of the United States and Canada since publication of the 1952 Educational Number. New executive officers have been appointed by Stanford, Georgetown, Georgia, Illinois, Iowa, Johns Hopkins, Tufts, St. Louis, Albany, Cornell, Rochester, Baylor, Virginia, Washington, Missouri, North Dakota, and Southern California.

Medical School Calendars

Conventional schedules were followed during the 1952-1953 academic year by most schools, with students entering in September or October and graduating in May or June. Schedules for the freshman class will be the same in all schools for 1953 as for 1952.

At Kansas, where the freshman year consists of two semesters and a summer session, with vacations and periods of instruction staggered, half the freshmen began their studies in June and half in September. Graduation is in June. The University of Tennessee admitted students each quarter and graduated a class each quarter.

At Duke University, the academic year consists of three quarters each year. There is no summer quarter between the first and second year, but in the two clinical years the subjects of the autumn, winter, and spring terms are repeated in the summer quarter. This accelerated schedule is optional, and students may take their first year and three quarters in each of their subsequent years and receive their certificates in four calendar years; if they receive permission from the curriculum committee, they may at the end of their second year take the clinical quarters given during the summer and receive their certificates in three and one-quarter calendar years. Freshmen are admitted in September only.

Freshmen students are admitted to the University of Chicago annually in September. They may, however, elect to accelerate their programs and graduate in a minimum of approximately three and one-quarter years.

The University of Utah, which had been on an accelerated program, returned to a conventional schedule for the class entering in September, 1951. During the transition the upper classes will complete their medical course on an accelerated schedule. Mississippi continued to admit a class in July and one in January. Canadian medical schools followed regular schedules during the past year and will continue to do so in the coming year.

Scheduled Clock Hours of Instruction

The schools were requested to estimate the approximate total of hours scheduled for each class enrolled during the 1953-1954 academic year. The 73 schools reporting on the first two years had an average of 1,152 hours scheduled for the first year and 1,156 hours for the second year. For the first year, the lowest number of scheduled hours reported was 804 and the highest was 1,521; for the second year the low was 864 hours and the high was 1,548 hours. Sixty-six schools reported an average of 1,318 hours in the third year, with a low of 751 and a high of 2,119. Sixty-five schools that gave figures for the fourth year had an average of 1,421 hours, with a low of 944 and a high of 2,376.

Comments that accompanied many of these estimates of scheduled hours make it clear that the figures from different schools, as furnished, are not comparable and do not always reflect accurately the total hours of instruction that are given. Some schools did not include as regularly scheduled hours time devoted to elective courses and other schools excluded night duty that constitutes a regular part of clinical clerkship assignments. An additional variable is introduced by the difference in the length of the academic year, which may range from two semesters to four quarters in length.

Enrollments

For the fifth consecutive year the total number of students enrolled in approved medical schools in the United States established a new record. Enrollment in the 72 medical and 7 basic science schools during 1952-1953 totalled 27,688 as compared to 27,076 in the previous year. There was an increase in total enrollment of 612, or 2.3%. There was, however, for the first time in five years, a slight decrease in the size of the entering freshman class. This class, numbering 7,425, was smaller by 16, or 0.2% than last year's entering class. This leveling off in the size of the freshman class, following four consecutive entering classes of record size, is expected to be temporary. New facilities now in operation and expansion programs soon to be completed should provide further significant expansion of enrollments.

When students now enrolled in the medical schools of the University of California at Los Angeles, the University of Miami, the University of North Carolina and the University of Puerto Rico are included, the total enrollment is increased by 279. However, these schools are not in full operation and consequently not yet eligible for Council approval. Their enrollment figures, therefore, may not be added to the present official totals.

TABLE 5.—*Enrollments by Classes in Medical Schools of the United States and Canada, 1952-1953*

Students in the required intern year are not included.

	No. of Schools	Freshmen	Sophomores	Juniors	Seniors	Total	Total Preceding Session
United States							
Medical Schools.........	72	7,140	6,795	6,725	6,475	27,135	26,515
Basic Science Schools...	7	285	268	.....	.....	553	561
Totals..............	79	7,425	7,063	6,725	6,475	27,688	27,076
Canada							
Medical Schools.........	10	886	780	865	852	3,383*	3,394†
Basic Science School....	1	32	29	.....	.....	61	64
Totals..............	11	918	809	865	852	3,444*	3,458†
Totals..............	90	8,343	7,872	7,590	7,327	31,132	30,534

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* Does not include 472 premedical and 57 fifth year students.
† Does not include 395 premedical and 194 fifth year students.

Enrollment figures for each approved school are given in tables 2 and 4 and total enrollments for all approved medical schools and basic science schools in the United States and Canada are summarized in table 5.

In addition to students regularly enrolled as full time students of medicine, the schools had enrolled a total of 140 part time and special students working toward the M.D. degree.

Total enrollment in the 10 medical schools and one basic science school in Canada was 3,444, a decrease of 14, or 0.4%, since last year. These schools had 472 additional students enrolled in two premedical years and 57 in an additional (not intern) year. These additional students are included in the "total" column of table 3 and are not included in table 5.

There were 783 students in the United States and Canada who were enrolled in internships that were a part of the degree requirement of the medical schools at which they were educated. The total number of students enrolled in such internships in the United States for each academic year since 1930-1931 is shown in table 6.

Total enrollments, by classes, in the medical and basic science schools of the United States, for each academic year since 1930-1931 are shown in table 7. For years prior to 1942-1943, the totals given in table 7 are somewhat higher than the sum of the figures for the various classes in a given year. This discrepancy was due to the inability of certain schools, in those earlier years, to classify their students strictly into conventional classes.

TABLE 6.—*Students in the Required Intern Year in the United States, 1931-1953*

1930-1931..................	1,025	1942-1943..................	639
1931-1932..................	1,067	1943-1944..................	451
1932-1933..................	1,106	1944 (Second Session).....	447
1933-1934..................	1,183	1944-1945..................	452
1934-1935..................	1,233	1945-1946..................	488
1935-1936..................	1,213	1946-1947 *................	582
1936-1937..................	1,255	1947-1948..................	447
1937-1938..................	1,132	1948-1949..................	458
1938-1939..................	1,152	1949-1950..................	454
1939-1940..................	1,152	1950-1951..................	501
1940-1941..................	1,058	1951-1952..................	379
1941-1942..................	767	1952-1953..................	407

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* Includes additional classes.

In table 8, the medical schools of the United States are ranked according to the size of their student bodies. Enrollments ranged from 181 to 713 with a median of 447 and an average of 377.

In addition to regularly enrolled medical students, there were 140 part time or special students working toward the M.D. degree in medical schools in the United States and two such students in Canadian schools. The distribution of these students, by schools, is recorded in the first column of table 14.

TABLE 7.—*Students in the Medical and Basic Science Schools in the United States, 1931-1953*

Students in the required intern year are not included.

	Freshman	Sophomore	Junior	Senior	Total
1930-1931..................	6,456	5,538	5,080	4,908	21,982
1931-1932..................	6,260	5,462	4,932	4,885	22,135
1932-1933..................	6,426	5,479	5,017	4,948	22,466
1933-1934..................	6,457	5,571	4,988	4,937	22,799
1934-1935..................	5,356	5,642	5,142	4,905	22,888
1935-1936..................	6,605	5,458	5,230	5,020	22,564
1936-1937..................	5,910	5,269	5,140	5,158	22,095
1937-1938..................	5,791	5,225	4,986	5,036	21,587
1938-1939..................	5,764	5,160	4,947	4,921	21,302
1939-1940..................	5,794	5,177	4,921	4,894	21,271
1940-1941..................	5,837	5,254	4,969	4,849	21,379
1941-1942..................	6,218	5,406	5,087	4,942	22,031
1942-1943..................	6,425	5,828	5,278	5,100	22,631
1943-1944..................	6,561	6,071	5,640	5,257	23,529
1944 (second session)....	6,648	6,140	6,084	5,794	24,666
1944-1945..................	6,523	5,979	5,700	5,826	24,028
1945-1946..................	6,060	5,750	5,751	5,655	23,216
1946-1947 *................	6,564	5,575	5,767	5,994	23,900
1947-1948..................	6,487	5,758	5,154	5,340	22,739
1948-1949..................	6,688	6,194	5,702	5,086	23,670
1949-1950..................	7,042	6,344	6,079	5,638	25,103
1950-1951..................	7,177	6,690	6,263	6,056	26,186
1951-1952..................	7,436	6,864	6,577	6,195	27,076
1952-1953..................	7,425	7,063	6,725	6,475	27,688

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* Includes additional classes.

Graduates

The 6,668 students graduated during the past year constitute the largest group ever graduated in one academic year from medical schools in the United States. This total exceeds by 279, or 4.4%, the previous record established in 1947, when at the termination of the wartime accelerated program several schools graduated more than one class. Tables 2 and 3 show, respectively, the number of students graduated from each approved medical school in the United States and Canada.

The total number of class A and approved medical schools, together with the total numbers of their students and graduates for each year since 1910 is shown in table 9. Similar figures for class B and C schools for the years 1910-1929 are recorded in table 10. The A, B, C classification of medical schools, inaugurated by the Council in 1910, was discontinued in 1929. Since 1929 schools have been classified as "approved," which is equivalent to the former class A, or as "unapproved." This fact should be borne in mind by those who desire to make comparative studies on the production of physicians at different periods.

TABLE 8.—*Medical Schools of the United States in Order of Size of Total Enrollment, 1952-1953*

Four Year Medical Schools	
University of [illegible]	713
University of [illegible]	683
University of Illinois	678
Jefferson Medical College	662
University of Texas	595
State University of New York, New York City	590
Indiana University	568
Harvard Medical School	529
New York University	529
Northwestern University	522
Ohio State University	516
Tulane University	514
University of Pennsylvania	511
Temple University	508
University of Minnesota	499
St. Louis University	499
New York Medical College	493
Columbia University	463
Louisiana State University	457
State University of Iowa	453
University of Kansas	450
Georgetown University	441
Tufts College Medical School	438
Southwestern Medical School	399
University of Maryland	395
Marquette University	390
University of Pittsburgh	389
University of Louisville	385
Hahnemann Medical College	385
College of Medical Evangelists	377
Medical College of Virginia	366
Baylor University	365
Washington University	364
University of Oklahoma	361
University of Cincinnati	354
George Washington University	347
University of Nebraska	344
Cornell University	338
Stritch School of Medicine	334
Western Reserve University	324
University of Arkansas	324
University of Wisconsin	322
Duke University	315
Medical College of Georgia	314
University of Colorado	313
University of California	301
Creighton University	298
Johns Hopkins University	294
Yale University	290
Howard University	289
University of Virginia	286
Emory University	286
University of Washington	284
University of Chicago	281
Chicago Medical School	280
State University of New York, Syracuse	278
Boston University	278
University of Southern California	275
University of Rochester	275
University of Oregon	274
University of Buffalo	274
Medical College of Alabama	271
Wayne University	268
Medical College of South Carolina	260
Meharry Medical College	259
Stanford University	243
Albany Medical College	215
Vanderbilt University	206
Bowman Gray School of Medicine	206
University of Vermont	184
Woman's Medical College	183
University of Utah	181
Schools of the Basic Medical Sciences	
University of North Carolina	118
University of Mississippi	109
University of Missouri	83
University of North Dakota	72
University of South Dakota	63
University of West Virginia	60
Dartmouth Medical School	48

The schools with the largest numbers of graduates during the past academic year were Illinois 174, Jefferson 160, Tennessee 155, Harvard 148 and the State University of New York College of Medicine at New York City 140. Four schools had less than 50 graduates, including Albany with 47, Woman's Medical College with 46, Vermont with 42, and Utah with 26. The University of Minnesota and the College of Medical Evangelists this year abolished a required intern year and, therefore, gave diplomas to two classes which numbered 232 and 191 respectively.

TABLE 9.—*Schools, Students*[1] *and Graduates in Approved Medical Schools,*[2] *(Class A) in the United States, 1910-1953*

Students in the required intern year are not included.

	Schools	Students	Graduates
1910	66	12,530	3,165
1915	67	11,314	2,629
1920	70	12,559	2,680
1921	70	13,488	2,811
1922	69	14,625	2,304
1923	70	16,454	2,881
1924	70	16,775	3,343
1925	71	17,462	3,842
1926	71	17,887	3,732
1927	73	18,754	3,793
1928	74	19,794	4,091
1929	75	20,843	4,412
1930	76	21,597	4,565
1931	76	21,982	4,735
1932	76	22,135	4,936
1933	77	22,466	4,895
1934	77	22,799	5,035
1935	77	22,888	5,101
1936	77	22,564	5,183
1937	77	22,095	5,377
1938	77	21,587	5,194
1939	77	21,302	5,089
1940	77	21,271	5,097
1941	77	21,379	5,275
1942	77	22,031	5,163
1943	76	22,631	5,223
1944	77	23,529	5,134
1944 (Second Session)	77	24,666	5,169
1945	77	24,028	5,136
1946 (to May 31)	77	23,216	5,826
1947	77	23,900	6,389
1948	77	22,739	5,543
1949	78	23,670	5,094
1950	79	25,103	5,553
1951	79	26,186	6,135
1952	79	27,072	6,080
1953	79	27,688	6,668

1. Includes figures for schools of the basic medical sciences.
2. Medical schools graded as Class A from 1900-1929; as approved since 1929.

TABLE 10.—*Schools,*[1] *Students and Graduates in the United States, 1910-1929. Class B and Class C Medical Schools*

Students in the required intern year are not included.

	Class B			Class C		
	Schools	Students	Graduates	Schools	Students	Graduates
1910	43	6,944	854	22	2,052	421
1915	22	2,668	688	15	909	219
1920	10	731	162	8	798	205
1921	9	832	200	7	553	180
1922	7	852	143	7	663	182
1923	4	522	83	7	456	156
1924	4	583	115	6	370	104
1925	3	554	118	6	184	14
1926	3	582	130	5	371	100
1927	3	564	117	4	344	120
1928	2	371	96	4	380	75
1929	1	35	34	0	0	0

1. Includes figures for schools of the basic medical sciences.

Increases in the size of graduating classes were reported by 46 schools for the 1952-1953 academic year, and decreases were reported by 18; 6 had the same number as the previous year.

The Canadian medical schools reported 825 graduates, 42 more than for 1951-1952. The largest numbers were graduated by Toronto with 162 and McGill with 115; the smallest classes were at Alberta and Queens with 52 each.

TABLE 11.—*Graduates with Baccalaureate Degrees in Medical Schools in the United States and Canada, July 1, 1952 to June 30, 1953*

United States	Graduates	Degrees	Per Cent with Degrees
Medical College of Alabama	54	50	92.6
University	78	42	53.8
College of	191	164	85.9
University	67	39	58.2
Stanford University	62	62	100.0
University of California	72	72	100.0
University of Colorado	73	60	82.2
Yale University	64	59	92.2
Georgetown University	95	92	96.8
George Washington University	92	74	80.4
Howard University	67	67	100.0
Emory University	73	66	90.4
Medical College of Georgia	81	69	85.2
Chicago Medical School	63	47	74.6
Northwestern University	130	130	100.0
Stritch School of Medicine	80	30	37.5
University of Chicago	67	45	67.2
University of Illinois	174	171	98.3
Indiana University	134	130	97.0
State University of Iowa	103	81	78.6
University of Kansas	103	103	100.0
University of Louisville	100	90	90.0
Louisiana State University	105	85	81.0
[illegible]	128	113	88.3
[illegible]	76	76	100.0
[illegible]	92	76	82.6
[illegible]	72	62	86.1
[illegible]	148	131	88.5
[illegible]	100	97	97.0
[illegible]	137	109	79.6
[illegible]	59	46	78.0
[illegible]	232	232	100.0
St. Louis University	116	72	62.1
Washington University	95	83	87.4
Creighto	76	76	100.0
Universi	87	76	87.4
Albany	47	45	95.7
University of Buffalo	59	43	72.9
Columbia University	116	115	99.1
Cornell University	84	78	92.9
New York Medical College	121	110	90.9
New York University	127	122	96.1
State University of New York, New York City	140	130	92.9
University of Rochester	64	60	93.7
State University of New York, Syracuse	61	53	86.9
Duke University	85	56	65.9
Bowman Gray School of Medicine	52	41	78.9
University of Cincinnati	89	78	87.6
Western Reserve University	78	72	92.3
Ohio State University	84	84	100.0
University of Oklahoma	78	64	82.1
University of Oregon	71	71	100.0
Hahnemann Medical College	83	82	98.8
Jefferson Medical College	160	147	91.9
Temple University	122	101	82.8
University of Pennsylvania	129	121	93.8
Woman's Medical College	46	44	95.7
University of Pittsburgh	99	90	90.9
Medical College of South Carolina	57	49	86.0
University of Tennessee	155	77	49.7
Meharry Medical College	60	48	80.0
Vanderbilt University	51	51	100.0
Southwestern Medical School	98	65	66.3
University of Texas	138	110	79.7
Baylor University	88	47	53.4
University of Utah	28	26	92.9
University of Vermont	42	38	90.5
University of Virginia	70	57	81.4
Medical College of Virginia	100	87	87.0
University of Washington	72	50	69.4
University of Wisconsin	76	76	100.0
Marquette University	92	60	65.2
Totals	6,668	5,725	85.8
Canada			
University of Alberta	52	51	98.1
University of Manitoba	72	23	31.9
Dalhousie University	56	18	32.1
Queen's University	57	6	10.5
University of Western Ontario	62	35	56.5
University of Toronto	162	37	22.8
McGill University	115	96	83.5
University of Montreal	89	89	100.0
Laval University	108	108	100.0
University of Ottawa	52	31	59.6
Totals	825	494	59.9

The estimated number of graduates for 1953-1954, based on enrollments reported for senior classes in schools in the United States, is 6,831; for the Canadian schools it is 867.

There was an increase in both the number and the percentage of medical graduates in the United States and Canada who had baccalaureate degrees. Table 11 shows that 5,725, or 85.8%, of all medical graduates in the United States and 494, or 59.5%, of Canadian graduates held baccalaureate degrees.

Responsibility of Medical Schools for Other Students

In recent years, increasing recognition has been given to the heavy burden of instruction that medical faculties must assume over and above their regular programs for undergraduate medical students. Medical faculties provide part or all of the instruction given to large numbers of students, other than medical students, at both the undergraduate and graduate levels. That an attempt should be made, in any study of the cost of medical education, to segregate the cost of these additional programs has been emphasized in previous issues of this report.

The extent of these extra duties is indicated by the figures reported in tables 12 and 13. In previous years, these figures were summarized in a single table. However, this year, in order to identify the groups of extra students more clearly, graduate students and physicians working toward advanced degrees have been listed in a separate table.

Table 12 shows by general categories the numbers of students for whom medical schools were responsible other than undergraduate medical students and graduate students who are candidates for advanced degrees. In the groups presented in this table were a total of 50,445 students. Medical faculties provided full courses of instruction for students in technical schools, interns, residents, and fellows in the medical specialties and in some instances dental students also. The total numbers of such students was 14,811.

Table 13 summarizes the gross total figures, collected since 1947-1948, concerning students other than medical students who have received instruction from medical schools. Since statistics for the years 1947-1948 through 1949-1950 are incomplete in some categories, the total figures for those years should not be compared with those for subsequent years. It should also be noted that the figures for graduate students have now been entirely deleted from table 12. The gross total of 50,445, from table 12, when combined with the total figures for graduate students recorded in table 14 gives a grand total of 54,149 other students who received instruction from medical faculties. This is less by 1,288 than the total reported the previous year.

There were significant increases in the number of technical students (646), nursing students (460), interns (322), and residents (335). On the other hand, there were major decreases in the numbers of physicians enrolled in refresher courses (1,428), nonmedical students taking medical courses (1,059), dental students (455), and pharmacy students (375).

The numbers of physicians and graduate students working toward advanced degrees in medical school departments are recorded in four groups in tables 14 and 15. There were 1,419 physicians working toward advanced degrees in medical school departments and 2,285 additional graduate students enrolled in programs leading to advanced degrees in the basic medical sciences. During

TABLE 12.—*Other Students for Whom Medical Schools were Responsible, 1952-1953*

UNITED STATES School	Part Time or Special Students Working Toward M.D. Degree	Dental Students Receiving Instruction from Medical School Faculty	Pharmacy Students Receiving Instruction from Medical School Faculty	Nursing Students Receiving Instruction from Medical School Faculty	Students in Technical Schools Receiving Instruction from Medical School Faculty	Nonmedical Students Taking Medical Courses	Physicians Enrolled in Refresher or Continuation Courses	Physicians Enrolled in Formal Basic Science Courses in Preparation for Specialty Board Certification	Physicians Holding Appointments as Fellows	Interns for Whose Instruction and Supervision the Medical School Was Primarily Responsible	Residents for Whose Instruction and Supervision the Medical School Was Primarily Responsible	Totals
Medical College of Alabama	7	92	0	85	36	0	14	11	0	21	56	322
University of Arkansas	2	0	40	0	19	0	154	0	0	11	31	257
College of Medical Evangelists	0	0	0	176	52	1	116	8	1	98	38	490
Stanford University	0	0	0	102	57	136	141	0	33	53	72	594
University of California	0	198	75	291	39	0	617	0	0	50	105	1,375
University of Southern California	0	0	0	0	0	0	220	110	3	135	135	603
University of Colorado	1	0	0	193	33	0	1,312	5	3	48	147	1,742
Yale Un	0	0	0	242	0	17	70	3	28	44	65	469
George	0	0	0	0	12	563	178	0	36	22	39	850
Georgetc	0	188	0	116	2	0	24	0	8	11	48	397
Howard University	0	156	75	35	0	54	0	0	1	0	0	321
Emory University	0	150	0	367	25	0	127	0	19	53	126	867
Medical College of Georgia	9	0	0	32	1	4	41	0	0	14	41	145
Chicago Medical School	0	0	0	0	0	0	0	0	0	0	0	0
Northwestern University	3	0	0	175	30	0	12	0	0	135	143	498
Stritch School of Medicine	11	0	0	0	0	0	0	0	0	0	0	11
University of Chicago	0	0	0	0	0	0	0	0	0	30	100	130
University of Illinois	0	229	266	66	0	22	17	0	0	25	91	716
Indiana University	1	142	0	228	48	12	392	19	5	19	100	966
State University of Iowa	0	101	47	220	43	442	5	57	4	16	121	1,056
University of Kansas	12	0	41	165	0	583	1,600	2	3	19	75	2,500
University of Louisville	0	176	0	82	11	11	450	0	3	20	55	808
Louisiana State University	3	0	0	128	0	0	35	20	1	0	78	265
Tulane University	1	0	0	65	0	127	70	13	39	33	82	430
Johns Hopkins University	0	0	0	228	0	9	17	0	57	0	0	311
University of Maryland	0	0	46	71	6	0	49	59	12	23	63	334
Boston University	0	0	0	62	40	37	8	0	7	0	5	159
Harvard Medical School	0	28	0	0	0	0	382	55	361	0	0	826
Tufts College Medical School	0	269	0	0	0	0	78	0	65	0	0	412
University of Michigan	1	99	26	89	69	0	493	24	8	14	46	869
Wayne University	1	70	0	0	65	0	185	0	0	66	60	447
University of Minnesota	1	330	186	161	1,292	0	1,413	0	0	30	115	3,528
University of Mississippi	4	0	44	8	0	1	0	0	0	0	0	57
St. Louis University	5	117	0	202	137	0	6	0	0	5	26	528
University of Missouri	4	0	0	21	15	372	0	0	0	0	0	412
	0	0	0	0	77	47	6	11	68	51	124	384
	3	92	24	85	0	8	0	0	0	23	15	250
	0	0	0	120	18	0	121	0	0	12	39	310
Dartmouth Medical School	1	0	0	130	20	0	0	0	1	16	48	216
Albany Medical College	0	0	0	257	0	0	49	0	19	32	51	408
University of Buffalo	0	124	65	40	0	0	143	0	2	0	0	374
Columbia University	0	80	0	322	0	100	485	44	14	0	0	1,045
Cornell University	0	0	0	79	0	0	30	18	41	0	0	168
New York Medical College	0	0	0	173	0	0	84	5	3	2	26	293
New York University	0	0	0	479	0	106	0	0	60	59	143	847
State University of New York, New York City	1	0	0	0	0	0	25	40	0	35	85	186
University of Rochester	1	0	0	253	0	0	0	0	10	53	77	394
State University of New York, Syracuse	0	0	0	0	0	0	390	0	0	9	62	461
Duke University	2	0	0	129	48	10	10	10	19	46	97	371
University of North Carolina	2	82	91	42	0	129	331	0	3	26	24	730
Bowman Gray School of Medicine	1	0	0	117	18	0	0	0	0	9	51	196
University of North Dakota	1	0	0	105	2	70	0	0	0	0	0	178
Ohio State University	0	120	0	143	127	1,147	0	0	0	14	121	1,672
University of Cincinnati	0	0	0	124	3	3	337	0	22	52	114	655
Western Reserve University	7	172	0	257	17	0	235	55	34	0	0	777
University of Oklahoma	0	0	0	160	26	0	348	58	3	24	40	659
University of Oregon	19	0	0	397	34	4	451	0	0	17	74	996
Hahnemann Medical College	0	0	0	130	20	0	0	0	7	13	43	213
Jefferson Medical College	0	0	0	0	0	0	0	26	4	33	62	125
Temple University	1	0	0	251	20	0	36	5	0	19	102	434
University of Pennsylvania	0	140	0	37	0	44	0	0	138	26	171	556
University of	3	0	0	800	0	0	88	33	0	9	90	1,023
Woman's Medi	0	0	0	57	0	0	0	0	6	3	9	75
Medical Colleg	0	0	64	155	12	0	501	0	9	11	28	780
University of South Dakota	3	0	0	0	0	135	0	1	0	0	1	140
Meharry Medical College	1	130	0	26	21	0	0	0	0	1	15	194
University of Tennessee	0	203	121	142	23	0	60	0	0	0	0	549
Vanderbilt University	0	0	0	0	0	0	0	0	0	25	53	78
Baylor University	1	0	0	0	12	0	99	0	3	62	94	271
Southwestern Medical School	6	0	0	0	0	3	177	0	1	34	154	375
University of Texas	1	75	0	254	30	3	325	0	5	20	100	813
University of Utah	4	0	25	35	9	546	148	0	17	22	77	883
University of Vermont	2	0	0	40	24	1	0	0	1	20	25	113
Medical College of Virginia	0	205	235	381	44	52	625	0	4	36	84	1,666
University of Virginia	0	0	0	205	7	0	318	0	16	28	71	645
University of Washington	2	151	53	302	29	2,904	429	9	25	32	51	3,987
West Virginia University	1	0	45	0	23	6	0	0	0	0	0	75
Marquette University	5	220	0	0	0	0	200	0	0	0	0	425
University of Wisconsin	6	0	98	252	262	922	121	5	8	24	62	1,760
Totals	140	4,169	1,667	10,089	2,958	8,631	14,401	706	1,240	1,898	4,546	50,445

CANADA School	Part Time or Special Students Working Toward M.D. Degree	Dental Students Receiving Instruction from Medical School Faculty	Pharmacy Students Receiving Instruction from Medical School Faculty	Nursing Students Receiving Instruction from Medical School Faculty	Students in Technical Schools Receiving Instruction from Medical School Faculty	Nonmedical Students Taking Medical Courses	Physicians Enrolled in Refresher or Continuation Courses	Physicians Enrolled in Formal Basic Science Courses in Preparation for Specialty Board Certification	Physicians Holding Appointments as Fellows	Interns for Whose Instruction and Supervision the Medical School Was Primarily Responsible	Residents for Whose Instruction and Supervision the Medical School Was Primarily Responsible	Totals
University of Alberta	0	0	0	0	0	0	165	0	0	0	0	165
University of Manitoba	0	0	0	0	0	0	55	0	0	69	9	133
	0	24	38	22	0	29	296	0	0	56	0	465
	0	0	0	166	0	112	85	4	7	84	0	458
	0	0	0	12	0	2	13	0	0	48	9	84
University of Toronto	0	172	169	13	0	547	89	53	72	0	0	1,115
University of Western Ontario	2	0	0	53	0	0	0	0	14	20	0	89
Laval University	0	0	0	0	89	0	12	8	0	0	0	109
McGill University	0	70	0	0	0	0	0	0	0	0	0	70
University of Montreal	0	36	275	0	0	88	0	43	0	93	0	535
University of Saskatchewan	0	0	62	17	0	200	0	0	0	0	0	279
Totals	2	302	544	283	89	978	715	108	93	370	18	3,502

TABLE 13.—*Other Students for Whom Medical Schools in the United States Were Responsible, 1947-1953*

	Part Time or Special Students Working Toward M. D. Degrees	Dental Students Receiving Instruction from Medical School Faculty	Pharmacy Students Receiving Instruction from Medical School Faculty	Nursing Students Receiving Instruction from Medical School Faculty	Students in Technical Schools Receiving Instruction from Medical School Faculty	Nonmedical Students Taking Medical Courses	Physicians Enrolled in Refresher or Continuation Courses	Physicians Enrolled in Formal Basic Science Courses in Preparation for Specialty Board Certification	Physicians Holding Appointments as Fellows	Interns for Whose Instruction and Supervision the Medical School Was Primarily Responsible	Residents for Whose Instruction and Supervision the Medical School Was Primarily Responsible	Totals
1947-1948.........	105	*	*	*	*	478	13,187	2,338	*	*	*	16,108
1948-1949.........	93	*	*	*	*	2,039	15,695	1,697	*	*	*	19,524
1949-1950.........	110	*	*	*	*	2,720	17,930	1,087	1,135	1,960	4,345	29,287
1950-1951.........	106	3,854	2,497	9,195	1,402	9,838	17,654	1,152	1,238	1,786	4,259	52,981
1951-1952.........	125	4,626	2,042	9,629	1,312	9,690	15,829	978	1,204	1,576	4,211	51,222
1952-1953.........	140	4,169	1,667	10,089	2,958	8,631	14,401	706	1,240	1,898	4,546	50,445
Totals.........	679	12,649	6,206	28,913	5,672	83,396	94,690	7,958	4,817	7,220	17,361	219,567

* Figures not available.

TABLE 14.—*Physicians and Graduate Students Working for Advanced Degrees in Medical School Departments, 1952-1953*

School	Physicians Working Toward Advanced Degrees	Other Graduate Students Working for Degrees in Basic Medical Sciences	Total Students Receiving Master's Degree for Work in Medical School Departments	Total Students Receiving Ph.D. Degree for Work in Medical School Departments
UNITED STATES				
Medical College of Alabama..........	3	24	1	0
University of Arkansas..............	0	10	3	0
College of Medical Evangelists.......	4	0	4	0
Stanford University	1	7	3	4
University of California............	0	26	5	21
University of Southern California...	3	24	2	2
University of Colorado..............	214	49	28	10
Yale University	0	103	39	12
George Washington University.......	0	102	20	10
Georgetown University	1	17	2	4
Howard University	0	1	1	0
Emory University	0	8	0	0
Medical College of Georgia..........	0	0	0	0
Chicago Medical School..............	3	124	0	0
Northwestern University	44	0	26	16
Stritch School of Medicine...........	3	58	8	1
University of Chicago...............	3	124	33	32
University of Illinois..............	14	93	34	11
Indiana University	0	9	1	3
State University of Iowa............	7	75	10	18
University of Kansas................	10	28	5	3
University of Louisville............	1	2	0	0
Louisiana State University..........	0	2	0	0
Tulane University	35	43	2	2
Johns Hopkins University............	0	4	0	1
University of Maryland..............	0	26	1	5
Boston University	0	50	10	5
Harvard Medical School..............	0	49	0	0
Tufts College Medical School........	0	21	6	2
University of Michigan..............	38	56	0	0
Wayne University	65	33	2	1
University of Minnesota.............	788	146	77	11
University of Mississippi...........	0	14	6	3
St. Louis University................	22	41	8	12
University of Missouri..............	0	13	2	1
Washington University	0	13	0	4
Creighton University	15	4	9	0
University of Nebraska..............	0	4	3	1
Dartmouth Medical School............	0	0	0	0
Albany Medical College..............	0	6	1	0
Columbia University	2	0	0	0
Cornell University	0	17	0	2
State University of New York, New York City..........	8	0	0	0
New York Medical College............	0	0	9	0
New York University.................	0	41	2	4
State University of New York, Syracuse	0	17	1	1
University of Buffalo...............	0	30	0	0
University of Rochester.............	0	121	13	17
Duke University	0	0	0	0
University of North Carolina........	0	30	1	2
Bowman Gray School of Medicine....	0	6	2	0
University of North Dakota.........	0	14	5	0
Ohio State University...............	0	63	0	0
University of Cincinnati............	10	9	0	2
Western Reserve University..........	0	6	0	4
University of Oklahoma..............	0	27	2	0
University of Oregon................	0	13	7	1
Hahnemann Medical College..........	0	5	0	0
Jefferson Medical College............	0	33	5	2
Temple University	102	4	25	0
University of Pennsylvania..........	0	91	7	9
University of Pittsburgh............	0	0	2	2
Woman's Medical College of Pennsylvania	0	0	0	0
Medical College of South Carolina...	0	21	3	1
University of South Dakota..........	1	7	5	0
Meharry Medical College.............	0	4	1	0
University of Tennessee.............	13	31	8	1
Vanderbilt University	0	14	0	0
Baylor University	1	5	2	0
Southwestern Medical School.........	0	1	1	0
University of Texas.................	0	27	4	1
University of Utah..................	2	52	6	3
University of Vermont...............	0	10	2	0
Medical College of Virginia..........	0	14	6	0
University of Virginia..............	1	0	0	0
University of Washington............	5	62	8	3
West Virginia University............	0	3	1	0
Marquette University	0	21	13	0
University of Wisconsin.............	0	77	9	8
Totals............................	1,419	2,285	502	258
CANADA				
University of Alberta...............	0	2	2	0
University of Manitoba..............	5	0	2	0
Dalhousie University	10	6	3	0
Queen's University	4	6	9	1
University of Ottawa................	9	5	2	1
University of Toronto...............	52	52	6	8
University of Western Ontario.......	4	34	10	4
Laval University	1	3	1	3
McGill University	162	0	11	7
University of Montreal..............	9	10	1	3
University of Saskatchewan..........	0	11	1	1
Totals............................	256	129	48	23

the past academic year, the Master of Science degree was awarded to 502 persons for completion of graduate work in Medical school departments and the Doctor of Philosophy degree to 258. While the number of graduate students in the basic medical sciences is only 25 less than last year, there was a decrease of 486 in the number of physicians working toward advanced degrees. As a consequence there has been a decrease of 511, or 12.1%, in the number of physicians and graduate students taking advanced work in medical school departments. In the basic medical sciences alone in the past two years the number of graduate students has shrunk by 15.7%. These figures are of the utmost importance, since a continuing decline in the ranks of potential teachers trained in the basic medical sciences will accentuate the already existing shortage of teaching and research personnel trained in these vitally important fields.

Canadian medical schools reported a gross total of 3,887 students other than medical students who received instruction from their medical schools last year. This represents a decrease of 601. The number of graduate students working toward advanced degrees in the basic medical sciences decreased from 160 to 129 while the number of physicians working toward advanced degrees increased from 106 to 256. The total number of students other than graduate students and undergraduate medical students for whom these schools were responsible was 3,502. A marked drop in the number of nursing students (980) more than offset increases in the numbers of nonmedical students taking medical courses (61), technical students (53), physicians enrolled in refresher courses (51), and pharmacy students (41).

Table 15.—*Physicians and Graduate Students Working for Advanced Degrees in Medical School Departments, 1947-1953*

	Physicians Enrolled for Advanced Degrees	Other Graduate Students Working for Degrees in Basic Medical Sciences	Totals
1947-1948	813	1,090	1,903
1948-1949	1,133	1,765	2,898
1949-1950	1,125	2,094	3,219
1950-1951	1,561	2,720	4,281
1951-1952	1,905	2,310	4,215
1952-1953	1,419	2,285	3,704
Totals	7,956	12,264	20,220

Distribution of Students by Sex

Classification by sex of all students enrolled in medical and basic science schools in the United States and Canada for the academic year 1952-1953 is given in table 16. This table also records similar data for the graduates of each school.

The total number of women students and graduates and the proportion of women to all persons in these categories is given for each year since 1905 in table 18. Figures for the years 1905 through 1929 include statistics for class B and C schools; those for 1930 and subsequent years represent only approved schools.

Table 16.—*Distribution of Students and Graduates by Sex in the United States and Canada, 1952-1953*

	Students		Graduates	
United States	Men	Women	Men	Women
Medical C	260	11	54	0
University	307	17	77	1
College of	358	19	181	10
Stanford	223	20	59	3
[illegible]	286	15	70	2
[illegible]	260	15	63	4
[illegible]	287	26	68	5
[illegible]	273	17	59	5
[illegible]	336	11	87	5
[illegible]	421	20	90	5
[illegible]	261	28	63	4
[illegible]	281	5	71	2
gia	298	16	76	5
l	274	6	61	2
[illegible]	496	26	124	6
ine	327	7	79	1
University of Chicago	259	22	61	6
University of Illinois	645	33	167	7
Indian	547	21	127	7
State	443	10	99	4
University of Kansas	437	13	100	3
University of Louisville	365	20	93	7
Louisia	430	27	102	3
Tulane	497	17	123	5
Johns H	269	25	71	5
Universit	381	14	91	1
Boston	259	19	67	5
Harvard Medical School	494	35	141	7
Tufts C	422	16	96	4
Universi	648	35	127	10
Wayne	259	9	57	2
University	470	29	219	13
University	107	2	...	..
St. Louis	492	7	114	2
University of Missouri	79	4	...	..
Washington University	347	17	88	7
Creighton University	293	5	75	1
University of Nebraska	327	17	80	7
Dartmouth Medical School	48	0	...	..
Albany Medical College	204	11	42	5
University of Buffalo	259	15	57	2
Columbia University	415	48	103	13
Cornell University	322	16	79	5
New York Medical College	461	32	110	11
New York University	498	31	117	10
State University of New York, New York City	558	32	136	4
University of Rochester	257	18	59	5
State University of New York, Syracuse	267	11	59	2
Duke University	302	13	82	3
University of North Carolina	117	1	...	..
Bowman Gray School of Medicine	199	7	50	2
University of North Dakota	71	1	...	..
Ohio State	499	17	80	4
University	351	3	89	0
Western Re	296	28	72	6
University of Oklahoma	352	9	76	2
University of Oregon	263	11	69	2
Hahnemann Medical College	366	19	78	5
Jefferson Medical College	662	0	160	0
Temple University	474	34	111	11
University of F	488	23	125	4
University of	375	14	94	5
Woman's Medi	0	183	...	46
Medical College	254	6	57	0
University of South Dakota	62	1	...	..
Meharry Medical College	251	8	59	1
University of Tennessee	684	29	147	8
Vanderbilt University	199	7	50	1
Baylor University	343	22	82	6
Southwestern Medical School	374	25	95	3
University of Texas	568	27	133	5
University of Utah	176	5	26	2
University of Vermont	175	9	40	2
Medical College of Virginia	335	31	92	8
University of Virginia	283	3	67	3
University of Washington	270	14	69	3
West Virginia University	59	1	...	..
Marquette University	374	16	87	5
University of Wisconsin	296	26	13	3
Totals	26,225	1,463	6,305	363
Canada				
University of Alberta	213	18	47	5
University of Manitoba	257	16	68	4
Dalhousie University	204	12	54	2
Queen's University	221*	20*	51	6
University of Ottawa	200†	8†	51	1
University of Toronto	584‡	52*	154	8
University of Western Ontario	224	14	58	4
Laval University	471§	13§	106	2
McGill University	416	26	106	9
University of Montreal	378	36	84	5
University of Saskatchewan	52	9	...	..
Totals	3,220	224	779	46
Grand Totals	29,445	1,687	6,969	409

Number of Premedical Students Excluded:

	Men	Women
*	61	2
†	221	26
‡	114	5
§	41	2

Number of Fifth Year Students Excluded:

Men	Women
51	6

TABLE 17.—*Residence of Freshman Medical Students*

Marginal Number	School	1	2	3	4	5	6	7	8	9	10	11	12	13
		Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana
1	Medical College of Alabama	80	..	..	..	..	..	..	..	..	..	..	..	..
2	University of Arkansas School of Medicine	..	..	90	..	..	..	..	..	..	..	..	..	..
3	College of Medical Evangelists	..	..	1	35	2	2	..	..	2	..	1	1	1
4	University of Southern California School of Medicine	..	1	1	60	..	..	..	..	..	..	..	..	..
5	Stanford University School of Medicine	..	1	..	55	..	..	..	..	..	..	..	..	..
6	University of California School of Medicine	..	1	..	72	..	..	..	..	..	..	..	..	..
7	University of Colorado School of Medicine	..	1	..	..	65	..	..	..	..	..	..	..	..
8	Yale University School of Medicine	..	1	..	7	..	12	..	1	..	..	..	3	..
9	Georgetown University School of Medicine	..	..	..	3	..	8	..	6	1	..	..	1	..
10	George Washington University School of Medicine	1	2	1	11	..	..	..	14	7	1	8	1	1
11	Howard University College of Medicine	3	..	..	2	..	1	..	6	..	1	..	2	1
12	Emory University School of Medicine	2	..	..	..	..	..	..	1	20	37	..	1	..
13	Medical College of Georgia	..	..	..	..	..	..	..	..	..	80	..	..	..
14	Chicago Medical School	..	..	..	1	..	1	..	..	2	..	..	10	..
15	Northwestern University Medical School	2	3	..	9	3	2	..	..	2	..	2	43	9
16	Stritch School of Medicine of Loyola University	..	..	..	5	..	..	..	..	1	..	1	47	..
17	University of Chicago, The School of Medicine	..	..	..	11	1	1	..	..	..	..	..	17	1
18	University of Illinois College of Medicine	..	..	..	..	..	..	..	..	..	..	..	168	..
19	Indiana University School of Medicine	..	..	..	..	..	1	..	..	..	..	..	..	145
20	State University of Iowa College of Medicine	..	..	..	1	..	..	..	1	..	..	..	2	..
21	University of Kansas School of Medicine	..	1	..	..	..	..	..	..	..	..	..	..	..
22	University of Louisville School of Medicine	..	1	..	2	..	..	..	..	1	..	..	..	2
23	Louisiana State University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..
24	Tulane University of Louisiana School of Medicine	9	2	2	2	1	..	..	..	17	5	1	..	1
25	Johns Hopkins University School of Medicine	3	..	..	2	..	2	2	2	1	..	..	3	1
26	University of Maryland School of Medicine	..	..	..	1	..	..	1	2	..	..	..	1	1
27	Boston University School of Medicine	..	..	..	..	..	3	..	..	..	..	..	2	..
28	Harvard Medical School	1	..	..	7	..	3	..	3	1	..	..	9	1
29	Tufts College Medical School	..	..	..	..	..	16	..	..	..	..	..	..	..
30	University of Michigan Medical School	..	..	..	..	..	..	..	..	1	1	..	2	5
31	Wayne University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..
32	University of Minnesota Medical School	..	..	..	..	..	..	..	..	..	..	..	..	..
33	University of Mississippi School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..
34	University of Missouri School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..
35	St. Louis University School of	1	..	..	12	3	4	..	..	1	..	1	10	2
36	Washington University School	..	1	2	8	..	..	..	1	5	..	3	10	1
37	Creighton University School of	..	..	..	11	2	1	..	..	..	..	3	..	..
38	University of Nebraska College	..	..	..	..	..	..	..	..	..	..	..	..	..
39	Dartmouth Medical School	..	..	1	..	..	1	..	..	..	..	..	..	..
40	Albany Medical College	..	..	..	..	..	4	1	..	..	..	..	..	..
41	University of Buf	..	..	..	..	..	..	..	..	..	..	..	..	..
42	Columbia Univers	..	..	..	4	..	..	..	..	..	..	..	..	..
43	Cornell University Medical College	..	..	..	2	1	2	..	1	..	..	..	..	2
44	New York Medical College, Flower and Fifth Avenue Hospitals	1	2	..	2	..	1	1	1	3	..	..	3	..
45	New York University College	1	..	..	2	..	10	..	..	1	..	..	1	..
46	State University of New York	..	..	..	..	..	2	..	..	..	..	..	..	..
47	University of Rochester School	..	..	..	2	..	1	..	..	2	1	..	..	..
48	State University of New York at Syracuse College of Medicine	..	..	..	..	..	..	..	..	..	..	1	..	..
49	University of North Carolina School of Medicine	..	..	..	..	..	..	..	..	1	..	..	..	..
50	Duke University School of Medicine	2	1	..	1	..	..	1	1	10	2	..	..	..
51	Bowman Gray School of Medicine of Wake Forest College	..	..	..	..	..	..	..	..	8	4	..	1	..
52	University of North Dakota Schoo	..	..	..	..	..	..	..	..	..	..	..	..	..
53	University of Cincinnati College o	..	..	..	1	1	..	..	..	..	..	..	..	2
54	Western Reserve University School	..	..	..	..	..	..	..	..	1	..	..	3	2
55	Ohio State University College of	..	..	..	..	..	..	..	..	..	..	..	..	..
56	University of Oklahoma School o	..	..	..	..	..	..	..	..	..	..	..	..	..
57	University of Oregon Medical School	..	..	..	..	..	..	..	..	..	..	4	..	..
58	Hahnemann Medical College and Hospital of Philadelphia	..	..	..	..	..	1	2	..	..	..	..	2	1
59	Jefferson Medical College of	..	1	..	..	..	2	2	..	1	..	1	2	1
60	Temple University School of	..	..	..	2	..	1	2	..	3	..	..	3	..
61	University of Pennsylvania S	..	..	..	2	..	4	1	..	2	..	..	..	1
62	Woman's Medical College of	..	..	..	5	..	1	..	..	2	..	..	2	..
63	University of Pittsburgh Schc	..	..	..	..	..	..	..	..	..	..	..	..	..
64	Medical College of South	..	..	..	..	..	..	..	..	..	..	..	..	..
65	University of South Dakot	..	..	..	2	..	..	..	..	..	..	..	..	..
66	University of Tennessee Cc	10	1	6	..	..	1	..	..	10	3	..	..	..
67	Meharry Medical College	7	..	1	..	..	..	..	..	4	4	..	..	..
68	Vanderbilt University School	6	1	1	..	..	..	..	1	6	2	..	1	1
69	Southwestern Medical School	..	..	..	..	..	..	..	..	..	..	..	..	..
70	University of Texas School c	..	..	..	..	..	..	..	..	..	..	..	..	..
71	Baylor University College of	1	1	1	..	..	..	..	..	..	..	..	..	..
72	University of Utah School of	..	2	..	..	..	1	..	..	..	..	1	..	..
73	University of Vermont Colleg	..	..	..	..	..	3	..	..	..	..	..	..	..
74	University of Virginia Depart	..	..	..	..	..	..	..	..	2	1	..	..	..
75	Medical College of Virginia	..	..	..	..	..	..	1	1	1	..	..	..	1
76	University of Washington School o	..	..	..	..	..	..	..	..	..	..	3	..	..
77	West Virginia University School of	..	..	..	..	..	..	..	..	..	..	..	..	..
78	University of Wisconsin Medical	..	..	..	..	..	..	..	..	..	..	..	..	..
79	Marquette University School of	..	2	..	1	..	..	..	..	..	..	..	5	1
	Totals	130	26	107	343	79	92	14	42	119	142	25	356	184
80	University of Alberta Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..
81	University of Manitoba Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..
82	Dalhousie University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..
83	Queen's University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..
84	University of Ottawa Faculty of Medicine	..	..	..	1	..	..	..	..	..	..	..	..	..
85	University of Western Ontario Fa	..	..	..	..	..	..	..	..	..	..	..	..	..
86	University of Toronto Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..
87	McGill University Faculty of	..	..	..	7	..	1	..	..	1	..	..	1	2
88	University of Montreal Facul	..	..	..	..	..	..	..	..	..	..	..	..	..
89	Laval University Faculty of	..	..	..	..	..	..	..	..	..	..	..	..	..
90	University of Saskatchewan S	..	..	..	..	..	..	..	..	..	..	..	..	..
	Totals	0	0	0	8	0	1	0	0	1	0	0	1	2
	Grand totals	130	26	107	351	79	93	14	42	120	142	25	357	186
		1	2	3	4	5	6	7	8	9	10	11	12	13

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* Figures include two freshman classes.

† Figures are for students in beginning premedical year.

14 Iowa	15 Kansas	16 Kentucky	17 Louisiana	18 Maine	19 Maryland	20 Massachusetts	21 Michigan	22 Minnesota	23 Mississippi	24 Missouri	25 Montana	26 Nebraska	27 Nevada	28 New Hampshire	29 New Jersey	30 New Mexico	31 New York	32 North Carolina	33 North Dakota	34 Ohio	35 Oklahoma	36 Oregon	37 Pennsylvania	38 Rhode Island	39 South Carolina	40 South Dakota	41 Tennessee	42 Texas	43 Utah	44 Vermont	45 Virginia	46 Washington	47 West Virginia	48 Wisconsin	49 Wyoming	50 U. S. Territories and Possessions	51 Canada	52 Foreign	53 Totals	Marginal Number
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	80	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	90	2
..	1	1	..	..	2	1	2	2	..	1	..	2	..	..	2	1	4	2	..	..	2	7	1	..	..	..	1	2	..	..	..	4	..	..	..	3	3	7	96	3
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	68	4
..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..	1	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	62	5
1	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	77	6
..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..	80	7
..	2	1	..	2	..	7	..	..	..	..	1	..	..	3	6	..	18	1	..	2	1	..	4	1	1	..	..	..	..	..	..	2	..	1	..	2	..	..	79	8
..	..	..	..	1	2	13	1	..	..	..	1	..	..	..	20	..	46	..	..	2	..	..	11	6	..	..	..	..	..	..	..	..	1	..	..	..	..	1	124	9
..	..	..	..	1	8	2	1	..	..	1	1	..	..	..	5	1	5	1	..	4	..	..	11	..	..	..	..	..	1	..	5	1	..	1	..	1	1	2	95	10
..	..	..	1	..	..	1	2	1	2	..	..	..	..	..	5	..	11	2	..	2	2	..	7	1	5	..	3	2	..	..	5	..	2	..	..	..	..	9	79	11
..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	1	72	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	80	13
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	9	..	48	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	75	14
..	1	..	..	..	..	1	3	1	..	2	2	2	..	..	..	..	10	1	1	11	1	..	3	..	..	..	..	1	1	..	..	2	2	6	1	1	1	1	130	15
1	..	..	..	..	..	..	12	4	..	..	..	..	..	..	2	..	3	..	1	6	..	..	1	..	..	..	..	..	..	..	..	1	..	2	..	1	..	..	88	16
..	..	..	..	..	..	1	1	1	..	1	..	..	..	..	6	..	13	..	2	3	..	..	3	..	..	..	..	..	..	..	..	1	..	2	..	1	1	5	72	17
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	163	18
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	1	151	19
113	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	121	20
..	107	..	..	..	..	..	..	..	..	8	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	120	21
..	..	86	..	..	..	..	..	..	..	..	..	..	..	..	2	1	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	101	22
..	..	..	124	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	124	23
1	1	2	18	..	..	..	1	..	28	5	1	..	..	..	..	..	8	..	1	2	..	..	..	..	..	..	3	16	1	..	..	..	..	..	..	3	..	2	133	24
..	..	..	..	..	5	2	1	2	2	..	..	..	..	..	5	..	14	1	..	2	..	1	5	2	1	..	1	2	..	..	2	..	2	..	..	..	2	7	75	25
..	..	..	..	..	76	..	..	..	..	..	..	..	..	..	1	..	6	..	..	1	..	..	3	..	..	..	..	..	3	..	1	..	5	..	..	2	..	..	104	26
..	..	..	..	2	..	32	1	..	..	..	..	..	..	1	4	..	13	..	..	..	..	..	3	5	..	..	..	1	..	..	..	..	..	..	..	..	..	6	73	27
1	..	..	..	..	..	21	1	3	..	1	..	..	..	..	6	1	23	1	1	9	1	1	3	..	..	1	1	2	1	1	1	3	1	3	..	1	..	5	118	28
..	..	1	..	6	..	73	..	..	..	..	..	..	..	5	1	..	4	..	..	2	..	..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	115	29
..	..	..	..	..	..	..	176	1	..	..	..	..	..	..	1	..	1	..	..	4	..	..	4	..	..	1	..	..	..	..	..	1	..	1	..	2	..	2	203	30
..	..	..	..	..	..	..	70	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70	31
..	..	..	..	..	..	..	..	119	..	..	2	..	..	..	..	..	1	..	1	..	..	..	..	..	..	4	1	..	..	..	..	..	..	..	..	..	..	1	129	32
..	..	..	..	..	..	..	..	..	55	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	55*	33
..	..	..	..	..	..	..	..	..	..	44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44	34
2	1	4	1	..	..	1	11	3	..	23	1	..	..	..	2	..	5	..	..	21	..	..	4	..	1	1	..	..	1	..	..	4	3	..	1	2	..	2	128	35
2	..	..	..	..	..	..	1	2	..	28	2	..	..	..	2	..	5	..	..	3	1	..	1	..	..	1	..	..	..	..	..	4	..	..	..	2	..	1	80	36
5	2	..	..	..	..	1	1	1	..	3	..	23	..	..	3	1	4	..	1	..	..	..	1	..	..	1	..	..	..	..	..	4	..	1	3	4	..	..	76	37
1	..	..	..	..	..	..	..	1	..	..	..	81	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	87	38
..	..	..	..	..	1	3	2	..	..	2	..	2	..	1	1	..	6	..	..	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	24	39
..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	3	..	37	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	1	..	..	..	1	52	40
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..	142	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	151	41
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	5	..	56	..	..	1	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	72	42
..	..	..	..	..	1	4	1	..	..	..	..	..	..	..	14	1	73	..	..	6	..	1	4	1	..	..	1	1	1	..	..	..	..	..	..	..	..	3	120	43
1	..	..	..	1	..	1	1	2	1	..	..	1	..	1	15	..	38	..	..	3	..	..	3	..	..	..	..	..	1	..	..	..	..	..	1	1	..	1	86	44
..	..	..	..	..	..	8	..	..	..	..	..	..	..	..	15	..	77	..	..	1	..	..	5	7	..	..	..	..	1	..	..	..	..	..	..	..	..	..	129	45
..	..	..	..	..	2	1	1	..	..	..	..	..	..	..	17	..	118	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	143	46
1	..	..	..	1	1	2	1	..	..	..	..	..	..	..	4	..	43	..	..	1	..	..	3	..	..	..	..	..	..	1	..	..	..	1	3	2	..	1	71	47
..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	..	72	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	77	48
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	59	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	60	49
1	..	1	1	..	..	..	..	2	..	..	..	..	..	..	1	..	3	36	..	5	..	..	3	1	3	..	..	..	..	..	3	..	..	..	..	..	..	..	78	50
..	..	1	2	..	..	..	..	1	1	1	..	..	..	..	2	..	2	23	..	..	..	..	2	..	2	..	2	..	..	..	..	..	1	..	..	..	..	..	53	51
..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40	52
..	..	3	..	..	..	..	2	..	..	..	..	..	..	..	1	..	..	..	..	78	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	90	53
..	..	1	..	..	..	1	..	..	..	..	..	1	..	..	1	..	7	..	..	54	..	..	4	..	..	..	..	..	1	..	..	..	1	..	..	..	..	1	78	54
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	150	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	150	55
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..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	63	..	..	..	..	..	..	..	..	..	5	..	..	..	1	1	..	78	57
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	14	..	3	..	..	2	..	..	77	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	105	58
..	1	..	..	..	..	1	1	1	..	..	..	..	..	..	31	..	3	1	..	2	..	..	107	2	..	..	..	..	1	..	..	..	3	..	..	3	..	3	170	59
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	..	7	..	..	..	..	..	95	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2	133	60
..	..	1	..	..	..	5	..	..	..	1	..	..	..	..	14	..	9	2	..	3	..	..	74	..	1	..	..	..	..	..	..	..	5	1	..	..	..	1	127	61
1	..	..	..	..	..	1	2	..	..	..	..	..	..	..	2	..	6	1	..	1	..	..	21	..	..	..	..	2	..	..	..	..	..	1	..	..	..	2	50	62
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	99	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	100	63
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	79	..	..	..	..	..	..	..	..	..	..	..	..	..	79	64
1	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	24	..	..	..	..	..	..	..	..	..	..	..	..	30	65
..	..	4	..	..	..	..	..	..	10	1	..	..	..	..	..	1	1	5	..	1	5	..	1	..	1	..	119	4	..	..	..	..	..	..	1	..	..	1	216	66
..	..	..	5	..	2	..	2	..	8	..	..	..	..	..	1	..	1	5	..	3	1	..	1	..	2	..	7	5	..	..	3	..	..	..	..	..	..	3	65	67
..	..	8	1	..	1	..	..	..	5	2	..	..	..	..	1	..	1	..	..	2	1	..	..	..	..	..	11	1	..	..	..	..	..	..	..	..	..	..	53	68
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	101	..	..	..	..	..	..	..	..	..	..	101	69
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	165	..	..	..	..	..	..	..	..	..	..	165	70
..	..	..	1	..	..	..	..	..	4	..	2	..	..	..	1	..	..	1	..	..	..	..	1	..	..	..	..	80	..	..	..	..	1	..	..	..	..	1	95	71
..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	45	..	..	..	..	..	..	..	..	1	54	72
..	..	..	..	7	..	8	..	..	..	..	..	..	..	5	3	..	7	..	..	..	..	..	2	..	..	..	..	..	..	15	..	..	..	..	..	..	..	1	51	73
..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	63	..	2	..	..	..	..	..	76	74
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	3	..	1	..	..	..	..	..	..	1	..	..	..	67	..	4	..	..	..	..	1	84	75
..	..	..	..	..	..	..	..	..	..	..	3	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	66	..	..	..	1	1	..	76	76
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32	..	..	..	..	..	32	77
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	81	..	..	..	..	83	78
..	..	..	1	..	1	..	2	8	..	..	1	..	..	..	2	..	7	..	1	3	..	1	..	..	..	..	..	..	..	..	..	2	..	55	..	..	..	7	100	79
132	116	116	155	22	104	196	303	159	118	125	24	115	4	17	264	15	970	148	46	394	117	75	580	36	101	35	182	385	60	18	150	101	68	158	16	40	10	91	7,425	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	60	..	60	80
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	71	1	73	81
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	57	1	59	82
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	57	2	64†	83
..	..	..	..	1	..	3	1	..	..	..	..	..	..	1	..	..	6	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	44	5	63	84
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	59	..	60	85
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	127	..	127†	86
..	..	..	..	1	..	6	2	..	..	..	..	..	..	..	1	..	14	..	..	1	..	1	2	..	..	..	..	..	..	..	..	6	..	1	..	..	47	14	108	87
..	..	..	..	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	115	2	121	88
..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	116	1	119†	89
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	1	32	90
0	0	0	0	3	0	11	3	0	0	0	0	0	0	3	1	0	26	0	0	1	0	1	4	2	0	0	0	0	0	0	0	6	0	1	0	0	784	27	886	
132	116	116	155	25	104	207	306	159	118	125	24	115	4	20	265	15	996	148	46	395	117	76	584	38	101	35	182	385	60	18	150	107	68	159	16	40	794	118	8,311	
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	

There were 1,463 women in medical and basic science schools in the United States during 1952-1953, 8 less than last year. However, there were proportionately about the same number of women in medical school and entering medical school this year as in the previous year. They comprised 5.3% of all students as compared with 5.4% last year. Women in freshman classes totaled 399, or 5.3%, of the total as compared with 394, or 5.3%, last year. Women this year constituted 6.1% of all applicants to medical school as compared with 5.6% last year. The actual number of women graduates increased slightly. There were 363 women graduates, or 5.5% of the total, as compared with 351, or 5.7%, the previous year. Dartmouth and Jefferson had no women students and Woman's Medical College no men. The number of schools with more than 30 women was eight, one less than the previous year. Canadian schools had 224 women enrolled, or 6.5% of all students, and had 46 women graduates, constituting 5.5% of the total.

TABLE 18.—*Women in Medicine in the United States*

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1905	1,073	4.1	219	4.0
1910	907	4.0	116	2.6
1915	592	4.0	92	2.6
1920	818	5.8	122	4.0
1925	910	5.0	204	5.1
1926	935	5.0	212	5.4
1927	964	4.9	189	4.7
1928	929	4.5	207	4.9
1929	925	4.4	214	4.8
1930	955	4.4	204	4.5
1931	990	4.5	217	4.6
1932	955	4.3	208	4.2
1933	1,056	4.7	214	4.4
1934	1,020	4.5	211	4.2
1935	1,077	4.7	207	4.1
1936	1,133	5.0	246	4.7
1937	1,113	5.1	238	4.4
1938	1,161	5.4	237	4.6
1939	1,144	5.4	260	5.1
1940	1,145	5.4	253	5.0
1941	1,146	5.4	280	5.3
1942	1,164	5.3	279	5.4
1943	1,150	5.1	241	4.6
1944	1,176	5.0	239	4.7
1944 (2d session)	1,141	4.6	252	4.9
1945	1,352	5.6	262	5.1
1946	1,868	8.0	242	4.2
1947*	2,183	9.1	342	5.4
1948	2,159	9.5	392	7.1
1949	2,109	8.9	612	12.1
1950	1,806	7.2	595	10.7
1951	1,564	5.9	468	7.6
1952	1,471	5.4	351	5.7
1953	1,463	5.3	363	5.5

* Includes additional classes.

TABLE 19.—*Enrollment by Classes of Veterans and Non-Veterans in the Medical and Basic Science Schools in the United States, 1952-1953*

	Men Veterans	Other Men	Total Men	Women Veterans	Other Women	Total Women	Total Men and Women
Freshmen	1,115	5,911	7,026	4	395	399	7,425
Sophomores	1,473	5,236	6,709	7	347	354	7,063
Juniors	2,314	4,062	6,376	12	337	349	6,725
Seniors	3,004	3,110	6,114	13	348	361	6,475
Totals	7,906	18,319	26,225	36	1,427	1,463	27,688

Negro Medical Students

There were 715 Negro medical students, 2.6% of all students, enrolled in medical schools in the United States during 1952-1953. These students were enrolled in 49 schools, with 265 at Howard University, 259 at Meharry, and 191 at other schools. There were 203 freshmen, 180 sophomores, 168 juniors, and 164 seniors.

Veterans in Medical Schools

The number of veterans enrolled in medical and basic science schools declined again for the second year. There were 7,942 veterans enrolled, comprising 28.7% of the total student body, as compared with 11,436, or 42.2%, last year. There were 36 women veterans.

Enrollment figures for veteran and nonveteran students are recapitulated in table 19. The number of veterans enrolled continues to decline and the present freshman class has the smallest complement of veterans for any year since the end of World War II. Veterans comprised 15.2% of the freshman class or 7.3% less than last year. The percentages of veterans in other classes were: sophomores 21%, juniors, 34.6%, and seniors, 46.6%.

TABLE 20.—*Number of Individuals from Each State Applying to One or More Medical Schools*

State	Accepted			Not Accepted			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Alabama	128	9	137	156	8	164	284	17	301
Arizona	25	0	25	28	0	28	53	0	53
Arkansas	107	7	114	83	3	86	190	10	200
California	367	31	398	625	61	686	992	92	1084
Colorado	78	4	82	70	5	75	148	9	157
Connecticut	91	3	94	198	7	205	289	10	299
Delaware	14	1	15	21	2	23	35	3	38
Dist. of Columbia	45	2	47	96	10	106	141	12	153
Florida	125	6	131	186	6	192	311	12	323
Georgia	152	8	160	85	4	89	237	12	249
Idaho	30	0	30	24	0	24	54	0	54
Illinois	347	19	366	409	25	434	756	44	800
Indiana	182	6	188	132	6	138	314	12	326
Iowa	134	7	141	46	3	49	180	10	190
Kansas	117	2	119	99	6	105	216	8	224
Kentucky	117	6	123	84	6	90	201	12	213
Louisiana	154	9	163	64	4	68	218	13	231
Maine	19	2	21	26	2	28	45	4	49
Maryland	106	8	114	95	7	102	201	15	216
Massachusetts	208	11	219	278	19	297	486	30	516
Michigan	296	24	320	228	14	242	524	38	562
Minnesota	162	6	168	94	7	101	256	13	269
Mississippi	110	5	115	94	1	95	204	6	210
Missouri	126	3	129	113	3	116	239	6	245
Montana	22	0	22	27	3	30	49	3	52
Nebraska	113	7	120	98	6	104	211	13	224
Nevada	2	0	2	4	0	4	6	0	6
New Hampshire	18	1	19	15	0	15	33	1	34
New Jersey	264	13	277	446	28	474	710	41	751
New Mexico	13	2	15	9	1	10	22	3	25
New York	933	67	1000	1596	119	1715	2529	186	2715
North Carolina	144	9	153	134	7	141	278	16	294
North Dakota	46	0	46	17	1	18	63	1	64
Ohio	395	17	412	375	28	403	770	45	815
Oklahoma	117	1	118	88	7	95	205	8	213
Oregon	66	5	71	68	4	72	134	9	143
Pennsylvania	548	51	599	868	54	922	1416	105	1521
Rhode Island	38	1	39	58	3	61	96	4	100
South Carolina	100	4	104	46	6	52	146	10	156
South Dakota	40	3	43	17	0	17	57	3	60
Tennessee	179	11	190	75	4	79	254	15	269
Texas	364	26	390	207	16	223	571	42	613
Utah	63	0	63	50	2	52	113	2	115
Vermont	18	2	20	13	0	13	31	2	33
Virginia	149	5	154	104	12	116	253	17	270
Washington	108	5	113	129	10	139	237	15	252
West Virginia	66	3	69	93	8	101	159	11	170
Wisconsin	153	17	170	108	7	115	261	24	285
Wyoming	15	0	15	14	0	14	29	0	29
Canada	6	3	9	58	4	62	64	7	71
U. S. Possessions	38	1	39	119	17	136	157	18	175
Foreign	62	10	72	167	17	184	229	27	256
Not Stated	15	0	15	70	5	75	85	5	90
Total Number of Individuals	7335	443	7778	8407	578	8985	15742	1021	16763

Stalnaker, John M. "The Study of Applicants for Admission to United States Medical Colleges, Class Entering in 1952-1953." Reprinted, with permission, from J. Med. Educ. 28:21-28, Feb. 1953.

Geographic Source of Freshman Students

The residence of students at the time of their enrollment in the 1952-1953 freshman class in each medical and basic science school in the United States and Canada is given in table 17. Since persons frequently change residence and may move to states other than those in which they were born, the home states listed in this table are not necessarily the states either of birth or of permanent residence.

The residences of 886 freshmen in Canadian schools are given at the bottom of table 17. This total differs from the total given in other tables, since it includes figures for the first classes of premedical students who are already registered at Queen's University, Laval, and Toronto.

TABLE 21.—*Residence of Freshman Students in Medical and Basic Science Schools in the United States and Canada, 1952-1953*

United States	Home State	Other State	Territories and Possessions	Canadian	Foreign	Totals
Medical College of Alabama	80	0	0	0	0	80
University	90	0	0	0	0	90
College of	35	48	3	3	7	96
University Medicine	60	8	0	0	0	68
Stanford	55	7	0	0	0	62
University	72	4	0	0	1	77
University	65	15	0	0	0	80
Yale University School of Medicine	12	65	2	0	0	79
Georgetown University School of Medicine	6	117	0	0	1	124
George Washington University School of Medici	14	77	1	1	2	95
Howard	6	61	0	0	9	79
Emory	37	34	0	0	1	72
Medical College of Georgia	80	0	0	0	0	80
Chicago Medical School	10	65	0	0	0	75
Northwestern University Medical School	43	84	1	1	1	130
Stritch School of Medicine of Loyola Univ.	47	40	1	0	0	88
University of Chicago, The School of Med.	17	48	1	1	6	72
University of Illinois College of Medicine	168	0	0	0	0	168
Indiana University School of Medicine	145	5	0	0	1	151
State University of Iowa College of Medicine	113	7	1	0	0	121
University of Kansas School of Medicine	107	10	0	0	3	120
University of Louisville School of Medicine	86	14	0	0	1	101
Louisiana State Univ. School of Medicine	124	0	0	0	0	124
Tulane Univ. of Louisiana School of Medicine	18	110	3	0	2	133
Johns Hopkins University School of Medicine	5	61	0	2	7	75
University of Maryland School of Medicine	76	26	2	0	0	104
Boston University School of Medicine	32	35	0	0	6	73
Harvard Medical School	21	91	1	0	5	118
Tufts College Medical School	73	42	0	0	0	115
University of Michigan Medical School	176	23	2	0	2	203
Wayne University College of Medicine	70	0	0	0	0	70
University of Minnesota Medical School	119	9	0	0	1	129
University of Mississippi School of Medicine	$\left.\begin{matrix}27\\28\end{matrix}\right\}55$	0	0	0	0	$\left.\begin{matrix}27\\28\end{matrix}\right\}55$
University of Missouri School of Medicine	44	0	0	0	0	44
St. Louis University School of Medicine	23	101	2	0	2	128
Washington University School of Medicine	28	55	2	0	1	86
Creighton University School of Medicine	23	49	4	0	0	76
University of Nebraska College of Medicine	84	2	0	0	1	87
Dartmouth Medical School	1	22	1	0	0	24
Albany Medical College	37	14	0	0	1	52
University of Buffalo School of Medicine	56	16	0	0	0	72
Columbia University College of Physicians and Surgeons	73	44	0	0	3	120
Cornell University Medical College	38	46	1	0	1	86
New York Medical College, Flower and Fifth Avenue Hospitals	77	52	0	0	0	129
New York University College of Medicine	118	24	0	0	1	143
State University of New York College of Medicine, New York City	142	8	1	0	0	151
University of Rochester School of Medicine and Dentistry	43	25	2	0	1	71
State University of New York at Syracuse College of Medicine	72	4	0	0	1	77
University of North Carolina School of Med.	59	1	0	0	0	60
Duke University School of Medicine	36	42	0	0	0	78
Bowman Gray School of Medicine of Wake Forest College	23	30	0	0	0	53
University of North Dakota School of Med.	37	3	0	0	0	40
University of Cincinnati College of Medicine	78	11	1	0	0	90
Western Reserve University School of Med.	54	23	0	0	1	78
Ohio State University College of Medicine	150	0	0	0	0	150
University of Oklahoma School of Medicine	100	0	0	0	0	100
University of Oregon Medical School	63	13	1	1	0	78
Hahnemann Medical College and Hospital of Philadelphia	77	27	1	0	0	105
Jefferson Medical College of Philadelphia	107	57	3	0	3	170
Temple University School of Medicine	95	34	2	0	2	133
University of Pennsylvania School of Med.	74	52	0	0	1	127
Woman's Medical College of Pennsylvania	21	27	0	0	2	50
University of Pittsburgh School of Medicine	99	1	0	0	0	100
Medical College of South Carolina	79	0	0	0	0	79
University of South Dakota School of Med.	24	6	0	0	0	30
University of Tennessee College of Medicine	149	66	0	0	1	216
Meharry Medical College	7	55	0	0	3	65
Vanderbilt University School of Medicine	11	42	0	0	0	53
Southwestern Medical School of The University of Texas	101	0	0	0	0	101
University of Texas School of Medicine	165	0	0	0	0	165
Baylor University College of Medicine	80	14	0	0	1	95
University of Utah School of Medicine	45	8	0	0	1	54
University of Vermont College of Medicine	15	35	0	0	1	51
University of Virginia Department of Med.	63	13	0	0	0	76
Medical College of	67	16	0	0	1	84
University of Washi	66	8	1	1	0	76
West Virginia Unive	32	0	0	0	0	32
University of Wisconsin Medical School	81	2	0	0	0	83
Marquette University School of Medicine	55	38	0	0	7	100
Totals	5,089	2,195	40	10	91	7,425
Canada						
University of Alberta Faculty of Medicine	0	0	0	60	0	60
University of Manitoba Faculty of Medicine	1	0	0	71	1	73
Dalhousie University Faculty of Medicine	0	1	0	57	1	59
Queen's University Faculty of Medicine	0	5	0	57	2	64
University of Ottawa Faculty of Medicine	0	14	0	44	5	63
University of Western Ontario Faculty of Medicine	0	1	0	59	0	60
University of Toronto Faculty of Medicine	0	0	0	127	0	127
McGill University Faculty of Medicine	0	47	0	47	14	108
University of Montreal Faculty of Medicine	0	4	0	115	2	121
Laval University Faculty of Medicine	0	2	0	116	1	119
University of Saskatchewan School of Medical Sciences	0	0	0	31	1	32
Totals	1	74	0	784	27	886
Grand Totals	5,090	2,270	41	794	116	8,311

There were 14 schools that excluded all out-of-state students, one less than last year. There were five schools that admitted less than five out-of-state students.

Of the total of 3,677 freshmen admitted last year to state and municipally owned schools in the United States, 335, or 9.1%, were nonresidents as compared with 283, or 7.7%, the previous year. The percentage of nonresident students enrolled in these schools remains substantially below the 17.1% enrolled in 1941-1942, the last prewar year. In the privately owned schools last year 2,001 students, or 53.4%, were residents of states other than that in which the school was located. This is approximately the same proportion of out-of-state students admitted by these schools the previous year.

"The Study of Applicants" [5] prepared by the Association of American Medical Colleges provides additional interesting data on the geographic origins of medical students in the 1952-1953 freshman class. Table 20, which is reproduced from Mr. Stalnaker's study, presents an analysis of the total numbers of male and female applicants from each state, territory, and so on, together with the numbers accepted and rejected. About half of all applicants came from seven states. Ranked in order of the numbers of their applicants, these states were New York, Pennsylvania, California, Ohio, Illinois, New Jersey, and Texas. The first three of these states, New York, Pennsylvania, and California, each had approximately the same proportion of applicants admitted to medical schools (37 to 39%).

The total number of resident students, students from other states, students from territories and possessions of the United States, Canadian students, and students from foreign countries enrolled in each school in the United States and Canada are recapitulated in table 21. The number of first year students per 100,000 of population for each state is given in table 22. For the entire nation, there were 4.7 freshman medical students per 100,000 of inhabitants, approximately the same number as last year. The 11 states that have no medical or basic science schools had an average of 3.7 first year students, the same number as last year. States that have medical schools had 4.9 students per 100,000 of population as compared with 5.2 last year and 4.9 the year before last.

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[5] Stalnaker, J. M.: Study of Applicants for Admission to United States Medical Colleges, Class Entering in 1952-1953, J. M. Educ. 28:21-28 (Feb.) 1953.

TABLE 22.—*Ratio of Freshman Students to State Populations, 1952-1953*

Numbers of Students per 100,000 Population[1] in the Medical and Basic Science Schools of the United States

*New Mexico	2.1	Wisconsin	4.5
*Nevada	2.2	Oregon	4.7
*Maine	2.5	South Carolina	4.7
*Arizona	3.0	Texas	4.7
California	3.0	Ohio	4.8
Missouri	3.1	Vermont	4.8
New Hampshire	3.2	District of Columbia	5.0
North Carolina	3.5	Iowa	5.0
West Virginia	3.5	*New Jersey	5.2
*Florida	3.8	Oklahoma	5.2
Georgia	4.0	*Wyoming	5.2
Illinois	4.0	Minnesota	5.3
Kentucky	4.0	South Dakota	5.3
*Delaware	4.1	Mississippi	5.4
*Idaho	4.1	Pennsylvania	5.4
Maryland	4.1	Colorado	5.5
Massachusetts	4.1	Louisiana	5.5
*Montana	4.1	Tennessee	5.6
Washington	4.1	Arkansas	5.7
Alabama	4.3	Kansas	5.8
Virginia	4.3	New York	6.4
Connecticut	4.4	North Dakota	7.7
*Rhode Island	4.4	Utah	8.1
Indiana	4.5	Nebraska	8.4
Michigan	4.5		
		United States	4.7

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* State with no medical school.

[1] Population Estimates, Current Population Reports. July 1, 1952, Series P-25, No. 70, March 24, 1953, Washington, D. C.

Forty students from United States territories and possessions were admitted last year, 14 less than in 1951-1952. Ten Canadians, three more than last year, were admitted to medical schools in the United States. Of the 886 students entering Canadian schools, 75 or 23 more than last year were from the United States; 27 students entering those schools were from foreign countries.

TABLE 23.—*Medical Schools Requiring an Internship*

United States

College of Medical Evangelists
University of Southern California School of Medicine
Stanford University School of Medicine
Chicago Medical School
Duke University School of Medicine[1]

Canada

University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
University of Ottawa Faculty of Medicine
Laval University Faculty of Medicine
University of Montreal Faculty of Medicine

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[1] Degree not withheld until internship completed.

Required Internships

The four schools in the United States and the five schools in Canada that require their students to complete an internship are listed in table 23. The discontinuance of this requirement by the College of Medical Evangelists and University of Minnesota during the current year represents the only change in the list since 1952. Although only these few schools require an internship, more than 99% of all medical graduates have for many years voluntarily served internships. In addition, a high proportion of medical graduates take additional hospital training after the internship.

Duke University gives the M.D. degree at the end of the four year medical course, but requires its students to sign a written agreement that they will spend two years training in a hospital or laboratory before entering practice. Several other schools permit substitution of a year of laboratory work for the internship. The number of United States students enrolled in intern years required by their schools is shown in table 6.

One year of internship is required as a prerequisite to licensure by the licensing boards of 26 states, the District of Columbia, Puerto Rico, and 5 territories and possessions. The internship requirement was instituted during the past year by South Carolina. Eleven boards require a rotating internship.

A list of boards with specific requirements for internships appears in table 24. Licenses of candidates from schools that require an internship are withheld by 10 states until completion of the internship (California, Connecticut, Iowa, Michigan, Oklahoma, Tennessee, Utah, Vermont, Washington, and Wisconsin). Certain states in addition to those listed in table 24 require internships of foreign medical graduates and of candidates seeking licensure on the basis of reciprocity or endorsement.

TABLE 24.—*Medical Licensing Boards Requiring a One Year Internship**

Alabama
Arizona[1]
California
Colorado
Delaware[2]
District of Columbia
Idaho
Illinois[3]
Iowa[2]
Kentucky
Michigan[2,3]
Nevada
New Hampshire
New Jersey[2,4]
North Dakota[3]
Oklahoma[3]
Oregon
Pennsylvania[3]
Rhode Island[2]
South Carolina
South Dakota
Utah
Vermont
Washington[3]
West Virginia
Wisconsin
Wyoming
Alaska[1,5]
Canal Zone
Guam
Hawaii
Puerto Rico[3]
Virgin Islands

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* Some states require the internship for graduates of medical faculties abroad and from reciprocity or endorsement applicants.

[1] Straight internship required.

[2] Internship must be a rotating service.

[3] Twenty-four month mixed or straight internship acceptable.

[4] Two year residency in a specialty or one year of postgraduate work accepted.

[5] Active practice for four years accepted in lieu of internship.

Hospitals approved for intern training by the Council on Medical Education and Hospitals of the American Medical Association are generally acceptable in those states that require an internship for licensure. The current list of approved internships will be published in the Sept. 26, 1953, issue of THE JOURNAL.

Preprofessional Requirements

The minimum educational requirement of the Council on Medical Education and Hospitals for students entering medical school after January, 1953, is three years of college training. Prior to this year the Council since 1918 had required two years of college and since 1938 had recommended three years. Although the present minimum requirement is three years, it is recommended that, in order to acquire a broad general education, premedical students take the full four year college course. In rare instances a medical school will be justified in admitting an exceptionally qualified student at the end of two years of college.

All state licensing boards require that an applicant for licensure present evidence of having completed at least two years of premedical study in college. Six states and Puerto Rico require three years. In tables 2, 3, and 4, the number of years of premedical work required by each medical school are shown.

College Record of the 1952-1953 Freshman Class

For the past three years, data have been reported on the scholastic records of students entering medical school. Since the colleges and universities use a number of different grading scales, it has been difficult to obtain data that are comparable. In previous years, the medical schools were asked to report the numbers of "A," "B," and "C" students admitted. Since a majority of institutions now prefer one of the numerical systems of grading, the medical schools were asked this year to report their figures on a four point scale in which 4.0 represents the highest grade attainable. For purposes of comparison, it should be noted that a grade of 3.6 to 4.0 on this scale is approximately equivalent to an "A" on the previous one, 2.6 to 3.5 grade a "B," and 1.6 to 2.5 equals a "C." The schools were requested to report the premedical scholastic records of the 1952 freshman class in three categories: those with grade point averages of 3.6 to 4.0, those with averages of 2 6 to 3.5, and those with averages of 1.6 to 2.5.

Seventy of the 79 medical and basic science schools in the United States were able to provide the data requested. Of the 6,491 freshman for whom figures are available, 18 0% had averages of 3.6 to 4.0, 67.5% had averages of 2.6 to 3.5, and 14.5% had averages of 1.6 to 2.5. Sixty-nine schools admitted students with college averages of 3.6 to 4.0. In this group fell 1,165 students, or 18.0% of the total. The largest number of such students admitted to one school was 96. All schools admitted students with averages of 2.6 to 3.5 and 4,384, or 67.5%, were in this category. Fifty-eight schools admitted students with averages of 1.6 to 2.5 and 942 students or 14.5% of the total were in this bracket. The largest number of students from this group admitted by one school was 94.

While the figures may not be strictly comparable to those compiled in previous years, it is worthy of note that while the proportion of students in the lowest grade bracket is about the same as last year (15%), there has been a decrease of 12% in the number in the highest bracket and a proportional increase in the middle group. It is of particular interest to note that in the 1950 freshman class, 40% of the students had "A" averages while 9.1% had "C" averages. In other words, while the proportion of students in the lower grade category has increased by about 5% in the past three years, the proportion in the highest category (A or 3.6 to 4.0) has decreased by 22%.

Official figures on the number of applicants to medical schools in the United States have been compiled by the Association of American Medical Colleges [5] from data provided by the schools. The number of individuals who applied for admission in the year 1952-1953 was 16,763 as compared with 19,920 in 1951-1952. This represents a decrease of 3,157 and is 5,516 less than the number who applied in 1950-1951. This is the fourth consecutive year in which the number of individual applicants has decreased, and this year's group is smaller by 7,671, or 31.4%, than that of the peak postwar year 1949-1950. Since 7,425 students were admitted to medical school during the past academic year, it may be calculated that one out of each 2.26 applicants was accepted. Last year, the ratio was one out of 2.68 students and in 1949-1950 it was one for 3.47.

It is also reported in this study that 5,215, or 31.1%, of those applying for admission in the 1951-1952 class had applied and been rejected during the previous year. Of this group, 38.5% were accepted last year. Among those applying to medical school for the first time in 1952-1953, 47.3% were accepted.

This report has emphasized in recent years that the difficulty of gaining admission to medical school has been grossly exaggerated. The statistics presented here amply confirm this fact. The situation in the past year, when there were 2.6 applicants for each place in medical school, was approximately comparable to the year 1929-1930 when there were 2.1 applicants for each available place.

The decline in the ratio of applicants to available places in medical school that has occurred in the past three years has been due not only to a decrease in the actual number of applicants but also to the significant expansion in the facilities for training physicians that has taken place in recent years, an expansion that is still continuing.

There are probably a number of causes for the shrinkage in the size of the applicant pool, and a complete analysis of this problem cannot be undertaken here. However, one major factor is the disappearance of the large backlog of veterans who completed their premedical training following the termination of World War II. Another factor, one that is certain to cause serious concern among medical educators, is the sharp decrease in the number of applicants with superior academic records. While, again, one can only speculate as to the cause, it seems likely that this drop is in no small measure due to increasing competition for such talent from other professional fields. If the present trend continues, many medical schools in this country may soon find themselves hard pressed to recruit adequate compliments of well-qualified students.

The 1953 Freshman Class

The 1952-1953 freshman class, with 7,425 students, was slightly smaller than the record class of 7,441 admitted in 1951-1952. Figures at present available suggest that the 1953-1954 freshman class may show some further slight reduction in the number of students admitted. This leveling off after a period of rapid and marked expansion in enrollments perhaps reflects an adjustment to operation of the present schools at or near their maximum capacity. However, there will be further, significant increases in enrollments when certain established schools complete expansion programs that are now under way and when several new schools, now in the final stages of development, are completed.

By June of this year the schools had already selected 7,068 students. Among the 6,646 men, 851, or 12.8%, were veterans (242, or 12.8%, less than the previous year). There were 422 women, of whom 4 were veterans. The Canadian schools by June had enrolled 675 students; the expected enrollment is 928.

Preparation for General Practice

Medical faculties and medical students alike show a continuing interest in education for family or general practice. Many medical schools report that their primary objective is the preparation of students for general practice and that the major emphasis in their teaching is on education for work in this field. A high proportion of the schools sponsor one or more programs specifically designed to introduce students to this type of practice.

The general objective of preparing students for general practice is implemented in a variety of ways in different schools. At the undergraduate level, this is accomplished through general practice preceptorships, home care and family study programs, general practice clinics, substitution of clerkships in general medical clinics for specialty clinic assignments, and lectures by outstanding general practitioners on the nature of general practice and the opportunities that it offers. In a number of states, scholarship funds have been established for the support of students who wish to practice in small towns or rural areas. Some schools have arranged affiliations with rural hospitals where students are assigned for a part of their clinical clerkship training. In their affiliated hospitals, 25 schools have organized internships and 18 are sponsoring residencies particularly designed to equip the physician for general practice.

Preceptorship Programs

Experimentation with general practice preceptorships is being continued in a number of schools. Three schools that formerly had such programs will discontinue them this year and one school which had planned to initiate a program in 1953 still has the plan under consideration. Thus, the total number of schools having such programs will be reduced from 25 to 21. Table 25 lists the schools that have established preceptorships.

The preceptorship is a required part of the medical course in 10 schools, 1 more than last year, and was elective in 11. The duration of preceptorship assignments ranges from 2 to 12 weeks, with an average of approximately 6 weeks. All of these programs are scheduled either during the summer between the third and fourth years or during the fourth year except at one of the two year basic science schools. Nineteen schools reported that last year a total of 917 students served preceptorship assignments.

Table 25.—*Medical Schools Offering Preceptorship Programs, 1952-1953*

University of Arkansas
College of Medical Evangelists
Yale University
Emory University
Stritch School of Medicine
State University of Iowa
University of Kansas
University of Louisville
Boston University
University of Nebraska
Albany Medical College
University of Buffalo
Duke University
University of Oklahoma
University of Oregon
University of Pennsylvania
University of South Dakota
University of Texas
University of Vermont
University of Washington
University of Wisconsin

The faculties of 18 schools were reported to be in general satisfied with the preceptorships. It may be assumed that the three schools that discontinued such programs had not found them satisfactory; two additional schools, although indicating some dissatisfaction, are continuing the program.

Student Fees

Resident tuition fees in the 72 medical schools and the 7 schools of the basic medical sciences in the United States for the academic year 1953-1954 will range from $99 to $968 except for one school, which will charge a fee of $1,291. The median fee will be $715 as compared with $689 last year. The average fee will be $633 as compared with $623 in 1952-1953. Only 11 schools have announced any increase in fees for the coming academic year. These increases range from $10 to $119. The average tuition fee now stands at 164% of the average tuition fee in 1939-1940, which was $378. As pointed out in the preceding section, however, student fees will provide only 20.1% of the cost of operating the medical schools during the forthcoming year.

Table 26.—*Range of Annual Fees in Medical and Basic Science Schools in the United States and Canada*

	1952-1953 Number of Schools		1953-1954 Number of Schools	
	United States	Canada	United States	Canada
Less than $99	1	..	1	..
$100 to 199	4	..	4	..
200 to 299	6	..	3	..
300 to 399	6	3	9	2
400 to 499	11	6	11	7
500 to 599	7	2	7	2
600 to 699	5	..	3	..
700 to 799	6	..	7	..
800 to 899	26	..	26	..
900 to 999	6	..	7	..
1,000 and over	1	..	1	..
Totals	79	11	79	11

In table 26 the 90 medical schools and schools of the basic sciences in the United States and Canada have been arranged in groups according to the fees that will be charged resident students for the session 1953-1954. This table also gives comparable statistics for the year 1952-1953. The figures in this table represent one-fourth of the total fees charged students for the four years of the medical course, including tuition fees and minor charges such as those for matriculation, breakage, diploma, and graduation. Thirty-one schools in the United States make an additional charge for nonresident students. In 29 schools these charges range from $80 to $600. One school charges nonresident students an additional fee of $1,100 and another an additional fee of $2,130.

Cost of Attending Medical School

The schools were requested this year to estimate the cost to their students of attending medical school. They were requested to include in the estimates all essential costs such as tuition and other fees, books, equipment, travel, and living costs. Seventy-seven schools provided the data requested. The average minimum outlay was estimated at $1,682, with a high of $3,300, a median of $1,680 and a low of $733. Estimates of the average cost averaged $2,083, with a high of $4,500, a median of $2,000, and a low of $900.

When similar figures were requested of the schools three years ago the median minimum outlay was estimated at $1,473 as compared to $1,680 this year, and the median for the average outlay was $1,800 as compared to $2,000.

Scholarship and Loan Funds

This year for the first time the medical schools were requested to furnish information concerning the total amount of scholarship and loan funds available to their students from funds held by or directly controlled by the medical schools and/or their parent universities. The 62 schools that reported on scholarship funds had available an average of $12,014. The largest amount reported was $110,625, the lowest $300, and the median $7,500. Seventy-three schools reporting on loan funds had an average of $41,201 available, with a high of $500,000, a median of $41,201, and a low of $500.

These are by no means the sole sources of financial aid available to undergraduate medical students. Some state governments have scholarships for their own residents and in 12 states special subsidies are offered to students who will agree to practice in small towns or rural areas. Additional aid is provided through the Southern Regional Education Board whereby the governments of 11 Southern states have contracted with a group of Southern medical schools for the education of a certain number of their residents. Through the Western Governors' Conference, a similar compact has been developed by five Western states. A third regional education plan is being actively considered for the New England states, and three states, Vermont, New Hampshire and Maine, have already passed enabling legislation to facilitate the activation of such a plan.

Private and Governmental Medical Schools

The medical schools in the United States are listed in table 27 according to the nature of their ownership. There were no changes of ownership during the last year. Forty-one schools are owned by private nonprofit corporations exempt from federal taxation; 35 schools are owned by states and three by municipal governments.

Enrollments in the private schools during 1952-1953 totaled 14,517, or 52.4% of the total for the country. The enrollment in state and municipal schools was 13,171, or 47.6%. Both groups of schools have shown an increase in total enrollments in the last three years. The increase has been slightly greater proportionally in the government owned schools which in 1949-1950 enrolled 45.1% of all medical students as compared with 47.6% during 1952-1953.

Freshman students in private schools numbered 3,748, or 50.5% of the total, and 3,677, or 49.5%, in the state and municipal schools. There has been a gain in the past three years by the governmental schools of 1.9% of the total freshman students enrolled.

Statistics with respect to resident and nonresident student enrollment in state and municipal as compared with private schools are presented in the section on the geographic sources of freshman students. Budgets of state and municipal schools for 1953-1954 will total approximately $43,854,000 and for the private schools $43,550,000. For the government owned schools this represents an increase of $4,654,000 over a year ago and for the private schools an increase of $1,885,000. During the past three years the budgets of the state and municipal schools have increased approximately $12,854,000 while those of the private schools have increased by $7,000,000.

Tuition fees of state and municipal schools for residents of their own state will vary in 1953-1954 from $99 to $800, with a median of $406. For private schools, tuition fees will range from $508 to $1,291, with a median of $832.

TABLE 27.—*Medical Schools Classified by Ownership, 1952-1953*

Privately Owned

1. College of Medical Evangelists
2. Stanford University School of Medicine
3. University of Southern California School of Medicine
4. Yale University School of Medicine
5. Georgetown University School of Medicine
6. George Washington University School of Medicine
7. Howard University College of Medicine
8. Emory University School of Medicine
9. Chicago Medical School
10. Northwestern University Medical School
11. Stritch School of Medicine of Loyola University
12. University of Chicago, The School of Medicine
13. Tulane University of Louisiana School of Medicine
14. Johns Hopkins University School of Medicine
15. Boston University School of Medicine
16. Harvard Medical School
17. Tufts College Medical School
18. St. Louis University School of Medicine
19. Washington University School of Medicine
20. Creighton University School of Medicine
21. Dartmouth Medical School
22. Albany Medical College
23. Columbia University College of Physicians and Surgeons
24. Cornell University Medical College
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26. New York University College of Medicine
27. University of Buffalo School of Medicine
28. University of Rochester School of Medicine and Dentistry
29. Duke University School of Medicine
30. Bowman Gray School of Medicine of Wake Forest College
31. Western Reserve University School of Medicine
32. Hahnemann Medical College and Hospital of Philadelphia
33. Jefferson Medical College of Philadelphia
34. Temple University School of Medicine
35. University of Pennsylvania School of Medicine
36. University of Pittsburgh School of Medicine
37. Woman's Medical College of Pennsylvania
38. Meharry Medical College
39. Vanderbilt University School of Medicine
40. Baylor University College of Medicine
41. Marquette University School of Medicine

State Owned

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4. University of Colorado School of Medicine
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7. Indiana University School of Medicine
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5. Medical College of Georgia
6. University of Illinois College of Medicine
7. Indiana University School of Medicine
8. State University of Iowa College of Medicine
9. University of Kansas School of Medicine
10. Louisiana State University School of Medicine
11. University of Maryland School of Medicine and College of Physicians and Surgeons
12. University of Michigan Medical School
13. University of Minnesota Medical School
14. University of Mississippi School of Medicine
15. University of Missouri School of Medicine
16. University of Nebraska College of Medicine
17. State University of New York College of Medicine at New York City
18. State University of New York at Syracuse, College of Medicine
19. University of North Carolina School of Medicine
20. University of North Dakota School of Medicine
21. Ohio State University College of Medicine
22. University of Oklahoma School of Medicine
23. University of Oregon Medical School
24. Medical College of South Carolina
25. University of South Dakota School of Medicine
26. University of Tennessee College of Medicine
27. Southwestern Medical School of The University of Texas
28. University of Texas School of Medicine
29. University of Utah School of Medicine
30. University of Vermont College of Medicine
31. Medical College of Virginia
32. University of Virginia Department of Medicine
33. University of Washington School of Medicine
34. West Virginia University School of Medicine
35. University of Wisconsin Medical School

Municipally Owned

1. University of Louisville School of Medicine
2. Wayne University College of Medicine
3. University of Cincinnati College of Medicine

Vacancies in Instructional Staffs

The total numbers of full-time faculty positions that medical schools were unable to fill have been reported for the past four years. This year the schools were asked to indicate which of these vacancies are in newly created positions and which were positions budgeted for in the academic year 1952-1953. These figures are summarized in table 28.

The total number of unfilled positions was 283, the highest number since the 441 reported in 1949, and it exceeds by 88 the number of vacancies reported last year. The 120 vacancies on the staffs of preclinical departments was 16 more than last year but less than in the other three preceding years. It is of interest that 47, or more than one-third of these vacancies, represented newly created positions. Anatomy, pathology and physiology,, as in the preceding two years, had the greatest number of vacancies. Pathology departments had 34 unfilled posts; anatomy and physiology departments each had 18.

TAPLE 28.—*Number of New and Budgeted Unfilled Full Time Positions by Departments in the Medical and Basic Science Schools of the United States, 1953-1954*

	New	Budgeted 1952-1953	Number of Unfilled Positions
Preclinical departments			
Pathology	14	20	34
Anatomy	8	10	18
Physiology	7	11	18
Physiological Chemistry	4	12	16
Pharmacology	5	10	15
Microbiology	5	5	10
Bacteriology	4	5	9
Total	47	73	120
Clinical Departments			
Pediatrics	21	9	30
General Surgery	16	12	28
Psychiatry	9	16	25
Internal Medicine	11	12	23
Obstetrics and Gynecology	6	10	16
Radiology	5	8	13
Preventive Medicine and Public Health	5	5	10
Anesthesiology	3	..	3
Neurology	1	2	3
Ophthalmology	..	2	2
Orthopedic Surgery	..	2	2
Physical Medicine and Rehabilitation	1	1	2
Urology	..	2	2
Dermatology	..	1	1
Neurological Surgery	..	1	1
Otolaryngology	..	1	1
Otology	..	1	1
Total	78	85	163
Grand Totals	125	158	283

Clinical departments reported 163 unfilled billets, of which 78 or nearly half were new positions. The departments reporting the largest numbers of vacancies were pediatrics 30, general surgery 28, psychiatry 25, internal medicine 23, and obstetrics and gynecology 16. Pediatrics and surgery both had almost three times as many vacancies as in the preceding year. About two-thirds of the positions in pediatrics and almost half in surgery were in new posts. There were 30 schools that reported no vacancies in their full-time faculties.

The vacancies in newly created positions is of particular interest. These figures for the basic science departments probably result from the enlargement of these staffs made necessary by expansion of student enrollments; for the clinical departments they reflect the increasing tendency in recent years to employ full-time teachers, especially in the major clinical disciplines.

New Medical Schools

There have been several developments of importance during the past year with respect to the establishment of new medical schools and the expansion of schools of the basic medical sciences to full four year medical schools. Two new schools, the University of Puerto Rico School of Medicine and the University of British Columbia School of Medicine, had classes enrolled in the first three years of the medical school course during the past academic year and during the coming academic year will have students enrolled in all four classes. These schools will graduate their first classes in June, 1954. The University of North Carolina, which is expanding to a four year school, enrolled its first third year class during the past year, will have a fourth year class enrolled in 1953-1954 and will graduate its first class in June, 1954.

With respect to the eligibility of the graduates of these schools for internships during the year 1954-1955, the Council has adopted the following statement:

> ### ELIGIBILITY OF 1954 GRADUATES OF NEW MEDICAL SCHOOLS FOR INTERNSHIPS
>
> The Council on Medical Education and Hospitals has voted that students who will graduate from the University of North Carolina School of Medicine, the University of Puerto Rico School of Medicine and the University of British Columbia School of Medicine in 1954 will be considered as if they had graduated from an approved medical school. Hospitals approved for intern training will not lose their approved status if they accept these students for internships.
>
> The development of these three schools of medicine has been followed closely by the Council. In accordance with long standing policy, however, approval is not granted to any medical school until representatives of the Council survey the school after instruction has been instituted in all four years of the medical school course. The first senior classes at these medical schools will not be enrolled until the fall of 1953. Inspection of these schools, therefore, cannot be carried out in time to include the findings of the surveys in the 1953 Educational Number of THE JOURNAL which will be used by hospitals for determining whether applicants for internship are graduates of an approved medical school. If these three schools are included in the Council's approved list in 1954, the work of all students in good standing at the schools at the time of the Council's representatives survey the schools will be fully accredited.

Another new school, the University of California at Los Angeles, which admitted its first freshman class in the fall of 1951, will have freshman, sophomore, and junior classes enrolled during the coming year. The University of Miami School of Medicine admitted its first freshman class in the fall of 1952 and during the coming academic year will have both a freshman and a sophomore class enrolled.

Statistics for these new schools do not appear in the various tables included in this report. By custom the Council includes in this report only statistics from approved medical schools. No medical school is eligible for consideration for admission to the list of approved medical schools until its full four year program is in operation.

The University of Mississippi, which is expanding from a school of the basic medical sciences to a four year medical school, has made substantial progress during the past year in the construction of a new medical school building and university hospital at Jackson. It is tentatively expected that a junior class will be enrolled in the fall of 1955. Construction of a new medical school building and hospital has also been started at West Virginia University, which is also expanding to a four year school; however, no date has been set for enrollment of a third year class.

The University of Missouri, which received an appropriation of 6 million dollars in 1952 to enable it to expand its basic science school to a four year school at Columbia, is proceeding actively with plans for the new physical plant. No date has yet been set for enrolling a third year class.

Yeshiva University in New York City, which announced two years ago its intention of developing a medical school, has named the school the Albert Einstein College of Medicine and is proceeding actively with plans for construction that it is hoped can be initiated in the fall of 1953. It is hoped that the first freshman class can be enrolled in the fall of 1955.

During the spring of 1953 the Florida legislature provided 5 million dollars as an initial appropriation for the development of a medical school by the University of Florida at Gainesville.

In Kentucky, interest in developing a medical school under the auspices of the University of Kentucky in Lex-

TABLE 29.—*Foreign Medical Schools*

List Prepared by the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges

On the basis of information presently available, the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges are of the opinion that medical institutions and medical organizations in the United States would be justified in considering current and past graduates of the following foreign medical schools on the same basis that they consider graduates of approved medical schools in the United States. This list is not final and will be supplemented as information is compiled for other schools.

Belgium

Free University of Brussels Faculty of Medicine
(Université Libre de Bruxelles Faculté de Médecine)
Catholic University of Louvain Faculty of Medicine
(Université Catholique de Louvain Faculté de Médecine or Katholieke Universiteit te Leuven)
University of Ghent Faculty of Medicine
(Universiteit te Gent Faculteit der Geneeskunde, or Université de Gand Faculté de Médecine)
University of Liège Faculty of Medicine
(Université de Liège Faculté de Médecine)

Brazil

University of São Paulo Faculty of Medicine
(Universidade de São Paulo Faculdade de Medicina)

China

Peiping Union Medical College

This recommendation applies to all those graduates who were granted the degree of Doctor of Medicine from the date when the first degrees were conferred in 1921 until and including the class of 1943. The education of students in the last class, that of 1943, was interrupted by World War II; therefore, some students finally completed their studies as late as 1949. However, their diplomas were issued as of the class of 1943. Following the Communist conquest of China the name of this school was changed to the China Union Medical College. The recommendation does not apply to this school.

Denmark

University of Copenhagen Faculty of Medicine
(Kobenhavns Universitet Laegevidenskabelige Fakultet)

Finland

University of Helsinki Faculty of Medicine
(Helsingfors Universitet Medicinska Fakulteten)
Medical Faculty Turku University
(Turun Yliopiston Laaketieteellinen Tiedekunta)

Lebanon

American University of Beirut School of Medicine

Netherlands

University of Amsterdam Faculty of Medicine
(Universiteit van Amsterdam Geneeskunde Faculteit)
State University of Groningen Faculty of Medicine
(Rijks-Universiteit te Groningen Geneeskunde Faculteit)
State University of Leiden Faculty of Medicine
(Rijks-Universiteit te Leiden Faculteit der Geneeskunde)
State *University of Utrecht Faculty of Medicine*
(Rijks-Universiteit te Utrecht Faculteit der Geneeskunde)

Norway

University of Oslo Faculty of Medicine
(Kongelige Frederiks Universitet Medisinske Fakultet)

Sweden

Royal Charles University Medical Faculty, Lund
(Kungl. Karolinska Universitetet Medicinska Fakulteten)
Charles Medico-Surgical Institute, Stockholm
(Karolinska Mediko-Kirurgiska Institutet)
Royal University of Uppsala Medical Faculty
(Kungl. Universitetet i Uppsala Medicinska Fakulteten)

Switzerland

University of Basel Faculty of Medicine
(Universität Basel Medizinische Fakultät)
University of Bern Faculty of Medicine
(Universität Bern Medizinische Fakultät)
University of Geneva Faculty of Medicine
(Université de Genève Faculté de Médecine)
University of Lausanne Faculty of Medicine
(Université de Lausanne Faculté de Mèdecine)
University of Zurich Faculty of Medicine
(Universitat Zurich Medizinische Fakultät)

The recommendation with respect to the following medical schools in Switzerland applies only to those graduates of Swiss medical schools who hold the Swiss Federal Diploma issued by the Federal Department of the Interior (Eidgenoissisches Department Des Innern, Département Féderal de L'Intérieur) and obtainable only by Swiss citizens who hold the Certificate of Medical Studies (Akademische Zeugnis, Certificat d'Études Médicales), or who hold one of the following certificates which the Swiss Universities issue to those, not citizens of Switzerland, who complete a course of study and pass examinations equivalent to those taken by Swiss citizens in qualifying for the Swiss Federal Diploma:

University of Basel—Academic Certificate on passing the medical examination for physicians (Akademische Zeugnis uber die bestandene Fachprufung fur Ärzte)

University of Bern—Medical diploma on passing examination for medicine (Aerztliches Fakultats diplom uber die bestandene Fachprufung für Ärzte).

University of Geneva and University of Lausanne—Certificate of Medical Studies (Certificat d'Études Médicales).

University of Zurich—Medical diploma for Foreigners (Medizinisches Diplom für Ausländer).

United Kingdom

England

University of Birmingham Faculty of Medicine
University of Bristol Faculty of Medicine
University of Cambridge Faculty of Medicine
University of Durham Medical School, Newcastle-upon-Tyne
University of Leeds Faculty of Medicine
University of Liverpool Faculty of Medicine
University of London †
University of Manchester Faculty of Medicine
University of Oxford Faculty of Medicine
University of Sheffield Faculty of Medicine

Northern Ireland

Queen's University of Belfast Faculty of Medicine

Scotland

University of Aberdeen Faculty of Medicine
University of *Edinburgh Faculty of Medicine*
University of Glasgow Faculty of Medicine
University of St. Andrews Medical School, St. Andrews and Dundee

Wales

Welsh National School of Medicine, University of Wales, Cardiff

The recommendation applies only to those physicians trained in the United Kingdom who *hold medical degrees from the universities listed.* The recommendation does not apply to those physicians who received their medical training at these universities or their affiliated hospital medical schools but who did not complete the work for the degree and who obtained their qualifications only through the examinations of the licensing corporations of the United Kingdom.

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† Work for the medical degree of the University of London is offered at the following hospital medical schools:
Charing Cross Hospital Medical School
Guy's Hospital Medical School
King's College Hospital Medical School
London Hospital Medical School
Middlesex Hospital Medical School
Royal Free Hospital School of Medicine
St. Bartholomew's Hospital Medical College
St. George's Hospital Medical School
St. Mary's Hospital Medical School
St. Thomas' Hospital Medical School
University College Hospital Medical School
Westminster Hospital Medical School

ington continues, and the legislative research commission is preparing a report on this project for submission to the 1954 session of the legislature.

There has been no action with respect to establishing new medical schools in New Jersey, Massachusetts, and Connecticut, three states that have been giving serious study to the possibility of establishing schools within recent years. In the New England states, however, considerable discussion is being given to a New England regional higher education plan, which would include a medical school. Vermont, Maine and New Hampshire have already passed enabling legislation for participation by those states in such a plan.

Foreign Medical Schools

In February, 1950, the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges first published a list of foreign medical schools whose graduates they recommend for consideration on the same basis as graduates of approved medical schools in the United States. The list is intended as a guide for institutions and organizations in this country who deal with foregn medical graduates and also as an aid to American students who plan to study medicine abroad.

Data on which this list is based are provided largely by American medical educators who, while on trips abroad, have volunteered to visit and report on foreign medical schools. In evaluating these data and developing the list, valuable assistance has been given by the Committee on Foreign Medical Credentials. This committee, established to advise the Council, is made up of representatives of a large number of private and governmental agencies which are concerned with medical education, medical licensure, and the problems of foreign trained physicians.

It has been emphasized that this list is a tentative one to which additional schools may be added as data are received that justify their inclusion. Hence, the absence of a school from the list does not necessarily imply that its educational program is unacceptable. It has not been possible to develop a satisfactory program for the evaluation of certain formerly reputable foreign schools whose programs are known to have deteriorated as a result of the war and subsequent events. Evaluation of the credentials of graduates from schools not named in the list is, therefore, a responsibility of those other agencies and organizations to whom such individuals apply for recognition. The Councils can offer no advance statement concerning schools which might in the future be included in the list.

Table 29 names the 50 schools now included in the list. The only change made during the past year was the inclusion of the Peiping Union Medical College. This school was renamed the China Union Medical College following the communist conquest of China and the recommendation does not apply to graduates of this latter school. The list is now accepted by 26 of the state licensing boards and by the National Board of Medical Examiners.

American Students In Foreign Medical Schools

Statistics were reported last year on the number of American students enrolled in foreign medical schools. The foreign schools were requested to furnish similar information again this year, and additional data were secured with the assistance of the Department of State and the National Selective Service System.

Figures for the 188 foreign schools from which data were secured are summarized in table 30. Countries are listed in order of the number of American students enrolled. A total of 1,734 students from the United States were enrolled in 72 foreign medical schools located in 22 different countries. As was true a year ago, the countries with the largest numbers of American students were Switzerland, Spain, and Italy. Other countries having more than 50 such students are Mexico, Germany, France, Belgium, the Dominican Republic, Austria, and the Netherlands. The footnote to table 30 indicates that about one-third of the entire student group are from Puerto Rico.

Table 31 recapitulates the figures for 1951-1952 and 1952-1953. Figures are available this year for 4 more countries and 13 more schools than last year. The number of foreign schools reporting American students has decreased by 6, but the total number of such students reported has increased by 613. The numbers of Puerto Rican students enrolled abroad has increased from 303 to 579.

TABLE 30.—*Distribution of American Students In Foreign Medical Schools, 1952-1953*

Country	No. of Schools	No. of Replies	Schools with American Students	Total No of Students
Switzerland	6	5	5	471*
Spain	9	1	1	393*
Italy	21	10	8	199
Mexico	17	13	3	180*
France	16	10	7	85*
Germany	24	17	13	83
Belgium	5	4	4	64
Dominican Republic	1	1	1	60*
Netherlands	4	1	1	55
Austria	3	3	3	31
Ireland	5	4	4	30
Australia	4	3	3	18
Greece	1	1	1	11
Great Britain	26	21	6	10
Cuba	1	0	0	10*
Chile	3	1	0	9*
Argentina	6	4	2	6*
Uruguay	1	1	1	4*
Philippines	2	2	2	4
Colombia	5	5	2	3
Sweden	4	4	2	3
Denmark	2	2	1	2
Lebanon	2	2	1	2
Peru	1	1	1	1
Bolivia	5	5	0	0
Equador	3	2	0	0
Finland	2	2	0	0
Guatemala	1	1	0	0
Haiti	1	1	0	0
Honduras	1	1	0	0
Iceland	1	1	0	0
New Zealand	1	1	0	0
Norway	2	2	0	0
Paraguay	1	1	0	0
Venezuela	3	3	0	0
Totals	188	137	72	1,734*

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* Included in total number of students are the following figures for students from Puerto Rico supplied by the Selective Service System.

Spain	386
Mexico	126
Dominican Republic	38
Cuba	10
Chile	9
France	5
Switzerland	2
Uruguay	2
Argentina	1
	579

Table 32 lists, in order, the schools with the largest numbers of American enrolled. This table is not comparable to the similar one prepared last year, since some schools for which data were available last year, for example, the University of Madrid, which had 150 American students, did not reply this year and others like the University of Lausanne, which this year reported 110 students, provided no data last year. The four schools with more than 100 American students enrolled were, in order, University of Geneva (180), University of Rome (150), National University of Mexico (113), and University of Lausanne (110).

TABLE 31.—*Distribution of American Students in Foreign Medical Schools, 1951-1953*

	No. of Countries	No. of Schools	No. of Replies	Schools with American Students	Total No. of Students
1951-1952............	31	170	124	78	1,121*
1952-1953............	35	188	137	72	1,731†

* Includes 803 students from Puerto Rico studying in 8 countries reported by Selective Service System.

† Includes 579 students from Puerto Rico studying in 9 countries reported by Selective Service System.

Figures which were received on the distribution of students by classes appear in table 33. In this group of 614 students, 70% are enrolled in the first three classes. Information is not available to explain, with certainty, the fact that the largest number of students are enrolled in second year classes. However, since a large portion of the first two years in many foreign medical schools is devoted to subjects which are usually included in premedical courses in this country, it is likely that many American students, by obtaining credit for premedical studies completed in the United States, have been able to gain admission to advanced standing. It is possible, therefore, that a substantial proportion of the second year group are students who were first admitted to foreign schools during the past academic year.

TABLE 32.—*Foreign Medical Schools with Largest Numbers of American Students Enrolled, 1952-1953*

Name of University	American Students Enrolled	Total Enrolment
Geneva (Switzerland)	180	728
Rome (Italy)	156	.....
National University (Mexico)...........	113*	6,000
Lausanne (Switzerland)	110	487
Bern (Switzerland)	87	600
Zurich (Switzerland)	77	842
Santo Domingo (Dominican Republic)..	60	858
Paris (France)	59	6,994
Leiden (Netherlands)	55	1,547
Heidelberg (Germany)	39	975
Monterrey (Mexico)	34	.....
Brussels (Belgium)	32	659
Louvain (Belgium)	25	1,776
Padua (Italy)	25	1,385
Vienna (Austria)	21	1,476
Galway (Ireland)	19	187
Munich (Germany)	15	1,665
Basel (Switzerland)	15	540
Montpellier (France)	11	1,250
Athens (Greece)	11	1,800

* Includes 95 students from Puerto Rico.

The caution which was voiced in this section last year will bear repetition. Correspondence received by the Council from American students enrolled in foreign medical schools and information received from other sources indicate that many of these students hope that, at the end of a year or two, they will be able to transfer to an American school. The likelihood of their being able to do so is small, not only because American schools are filled to capacity but also because differences in the organization of the curriculum of foreign schools make it difficult to fit such students into the programs of American schools.

Students who plan to study medicine abroad are also cautioned to determine whether or not the credentials which they will obtain will be recognized in this country. It is apparent that many of these students have not fully informed themselves concerning the educational standards of foreign schools. While there are many such schools whose excellence is rather widely recognized in the United States, there are others whose credentials may not be accepted by the licensing authorities. Students who are planning to study medicine abroad are therefore urged to communicate directly with the licensing boards of states where they hope to practice and to determine in advance of enrollment whether or not the credentials which they will receive are acceptable.

TABLE 33.—*Enrollment of American Medical Students by Classes, 1952-1953*

Country	1st	2d	3d	4th	5th	6th
Australia	4	5	7	2	..	..
Austria	1	2	4	1	1	..
Belgium	8	36	5	6	3	2
Dominican Republic...............	5	6	5	3	2	1
England	3	..	1	1	1	..
France	47	11	7	2	1	2
Germany	25	18	9	8	1	1
Greece	3	5	..	1	1	1
Ireland	8	5	5	7	5	..
Italy	2	61	66	39	6	21
Lebanon	..	1	1	..	..	..
Mexico	23	5	5	2	..	1
Peru	..	1	..	..	..	..
Philippines	1	1	..	..	..	..
Scotland	..	1	..	..	..	2
Switzerland	..	14	12	47	10	4
Totals	130	172	127	119	31	35

* Only some of the schools supplied this information; therefore, the totals within some countries differ from those found in table 30.

The Council has prepared a compendium of information on foreign medical education and the status of foreign medical credentials in the United States.[6] Reprints of this publication will be furnished on request, without charge.

Postgraduate and Continuation Courses for Physicians

The Council on Medical Education and Hospitals has published semiannually in THE JOURNAL a listing of postgraduate and continuation courses for physicians for the past 17 years. The opportunities presented in these listings include a wide variety of fields in clinical medicine and the basic sciences. The courses offered are for variable periods. With the exception of the formal basic science courses, these courses are not usually intended to prepare physicians for certification by the American boards in the specialties. Some opportunities are offered, however, for review work in preparation for the examinations of the specialty boards. The current listing was published in the June 13, 1953, issue of THE JOURNAL.

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[6] To be published.

This section is devoted to an analysis of the courses offered during the period July 1, 1952, to June 30, 1953. Brief mention is also made of some of the recent developments in postgraduate education. The statistical summaries are divided into three groups: short review courses of less than five days, courses of five days' duration or longer and, lastly, a group including clinical conferences, graduate assemblies, seminars, study, and circuit courses. Comparable figures are shown for the preceding seven years.

RECENT DEVELOPMENTS

Several institutions introduced new subjects this year. The American Diabetes Association, Inc., of New York conducted a four day program in Toronto on "Diabetes and Basic Metabolic Problems." Applications for this course exceeded the facilities available. A course in legal medicine and the elements of medical-legal litigation was given by the University of Texas Medical Branch at Galveston. The University of Buffalo Medical School presented a two day course for physicians on "The Laboratory in Clinical Diagnosis," designed to keep the practitioner up-to-date on developments in the laboratory sciences and to improve his diagnostic accuracy. The course included discussions of the basic physiology and biochemistry involved in laboratory diagnosis, evaluation of tests, and the interpretation and demonstration of selected procedures. The Extension Division of the University of California at Los Angeles was able to utilize the results of six years of research experience by the engineering department to present a six week's course in "Prosthetics." This course was open to occupational and physical therapists and prosthetists as well as physicians and was repeated a number of times in order to accommodate groups from various regions throughout the country.

Programs in general practice increased throughout the country. The Illinois Academy of General Practice sponsored a series of courses for its members at 10 widely separated centers throughout the state during March and April. Several of the medical schools in Chicago participated in this program. The Frank E. Bunts Educational Institute of the Cleveland Clinic Foundation inaugurated a two day general practice program in May. This course was sponsored jointly by the Institute and the Cuyahoga County Chapter of the American Academy of General Practice. Other organizations also added general practice refresher courses to their programs.

In many programs an effort in the direction of more individualized teaching methods was noted. The Los Angeles County Heart Association offered "Postgraduate Preceptorships in Cardiology" for the general practitioner. These preceptorships involved 12 sessions in which the physician-student and his preceptor discussed and interpreted the electrocardiograms and learned the latest methods of diagnosis and treatment while observing patients over a period of several visits. The new program of the Commission on Graduate Education of the Medical Society of the State of Pennsylvania included panel discussions, clinics, and round-table discussions.

Various postgraduate teaching techniques have been employed for the convenience of the practicing physician. Telephone seminars, consisting of panel discussions emanating from a central point to local county medical society groups throughout the state, were utilized by the state medical societies of Indiana, Kentucky, Pennsylvania, and Texas. Recordings of the Indiana program were used in Arizona for one of the programs of the state medical association. Recordings are also being developed as a mode of postgraduate communication by several other groups. Televised postgraduate programs of short duration were given by the universities of Alabama, Kansas, and Maryland. In all cases the program was televised intramurally, and surgery was the major subject presented. Plans are under consideration by a number of other institutions for the use of television in postgraduate programs. The American Cancer Society is planning a series of forty color television programs, all designed for the practicing physician. More and more medical schools are endeavoring to take their courses to the doctor in lieu of his coming to school. This is particularly true for the general practice refresher programs.

The Tennessee State Medical Association has just completed a circuit course on "Internal Medicine and Circulatory Diseases." Ten sessions were held in each of 50 teaching centers. In California, the state medical association utilized outlying centers for programs that in each case were presented by teams recruited from the faculties of the five medical schools of the state. Faculty members of the University of Colorado School of Medicine conducted one or two day postgraduate sessions at regular intervals in strategic centers. Similar programs were offered in Michigan, North Carolina, Pennsylvania, and Wisconsin.

In those states where ample clinical facilities are not available, medical schools in adjacent states have cooperated by sending teaching teams into these areas for one or more postgraduate programs. In this way, the physician in these states can obtain postgraduate training in or near his home community. The University of Utah School of Medicine sent a team to Arizona while the University of Colorado supplied teams in New Mexico and Wyoming as a part of its extension program. The University of Kansas School of Medicine presented an extensive program designed specially for physicians in nearby cities in Missouri. Several other medical schools contributed to the postgraduate needs of their region outside their own state, either by extension programs or special intramural programs for the physicians of these neighboring states.

The many different organizations and institutions who are engaged in postgraduate education have recognized the need for joint action or coordination in the interest of economy and efficiency of their various activities. In Massachusetts this has led to the development of the Postgraduate Medical Institute, which is sponsored by the three medical schools in Boston, the state medical society, the state health department, and representatives of a number of voluntary health agencies. By pooling resources and ideas, these organizations have been able to coordinate effort and to present a number of jointly sponsored programs. The initial experience with this program has proved successful, and it is planned to expand it for the coming year.

Coordination of the efforts of a number of interested groups is illustrated again by the course in "Treatment of Emergencies" conducted by the Southwestern Medical School of the University of Texas in association with the Texas Medical Association, Texas Academy of General Practice, the Dallas Southern Clinical Society, and the Postgraduate School of the University of Texas. Michigan and Wisconsin have been operating their programs on this basis for some time. Other states are considering adopting a similar pattern.

Recognizing the constant growth of interest and activity in the whole field of postgraduate medical education, the Council has been engaged for the past year in a comprehensive study of this field. This has involved personal visits to all of the major organizations and institutions involved in this kind of work, and first hand observation of a number of programs in action. Material derived from this survey is being supplemented by written data and information derived from a questionnaire study. It is hoped that the results of this study will be ready for publication some time early in 1954.

Table 34.—*Short Review Courses of Less Than Five Days' Duration, 1952-1953*

State Where Given	No. of Courses	State Where Given	No. of Courses
Arkansas	8	New Jersey	1
California	19	New York	60
Colorado	4	North Carolina	4
Connecticut	1	Ohio	8
Delaware	1	Oklahoma	11
District of Columbia	4	Oregon	4
Illinois	16	Pennsylvania	12
Indiana	3	South Carolina	2
Iowa	8	Tennessee	1
Kansas	15	Texas	24
Louisiana	2	Utah	8
Massachusetts	22	Vermont	9
[illegible]	44	Virginia	5
[illegible]	18	Washington	7
Missouri	1	Wyoming	1
Nebraska	1		
Total			324

ANALYSIS OF COURSES OFFERED, 1952-1953

Courses of Less Than Five Days' Duration.—During 1952-1953, 30 states and the District of Columbia provided opportunities of less than five days' duration for physicians desiring to continue postgraduate study in or near their home communities. There were 324 courses offered. Table 34 lists these states and the number of courses given in each state. Thirty-eight subjects were covered. Table 35 lists the subjects and the number of courses given in each subject. The attendance numbered 9,452.

The courses varied in length from sessions of one hour or a series of five or more lectures to four days full time and consisted of organized courses, clinics utilizing hospital patients, lectures, and demonstrations. Of the 324 courses offered, 40 were four day courses, 121 were three day courses, 122 were two day courses, and 21 were given in one full day. The remainder of the courses were reported by lectures, sessions, or hours. Forty medical schools participated in 253 of the courses offered. Other sponsoring agencies included hospitals in 44 instances and the Medical Department of the Army, special societies, and a graduate school in the remainder of the courses.

These opportunties were offered in every month except August. Sixteen courses were offered continuously and 21 quarterly. The instructors were chosen from the faculties of medical schools and from physicians practicing in the state. Medical school instructors participated exclusively in 71 courses and 66 were given by physicians in the state, while combinations of medical school instructors and physicians located in the state and elsewhere gave the remainder.

Table 35.—*Short Review Courses of Less Than Five Days' Duration, 1952-1953*

Subject	No. of Courses Given
Allergy	1
Anatomy	2
Arthritis	4
Anesthesiology	9
Bacteriology	2
Basic Sciences	2
Biochemistry	9
Cardiovascular Diseases	19
Dermatology and Syphilology	16
Diabetes	5
Electrocardiography	11
Endocrinology	9
Endoscopy	1
Fractures	2
Gastroenterology	8
Geriatrics	3
Hematology	10
Internal Medicine	18
Malignant Disease	4
Medicine, General	54
Neurology and Psychiatry	11
Obstetrics and Gynecology	25
Ophthalmology	2
Orthopedics	1
Pathology	2
Pediatrics	15
Pharmacology	1
Physical Medicine	1
Physiology	2
Physiological Chemistry	5
Poliomyelitis	3
Proctology	3
Public Health	4
Pulmonary Disease	6
Radiology	17
Surgery	29
Urology	7
Venereal Disease	1
Total	324

Table 36.—*Postgraduate Courses of Five Days or Longer, 1952-1953*

State Where Given	No. of Courses	State Where Given	No. of Courses
Alabama	2	[illegible]	21
Arkansas	2	[illegible]	6
California	73	Missouri	2
Colorado	5	New York	289
Connecticut	4	North Carolina	2
Delaware	1	Ohio	6
District of Columbia	12	Oklahoma	9
Florida	4	Oregon	11
Georgia	28	Pennsylvania	58
Illinois	128	Tennessee	6
Indiana	3	Texas	29
Kansas	12	Utah	2
Louisiana	4	Vermont	4
Maine	16	Washington	3
Maryland	58	Wisconsin	4
Massachusetts	1		
Total			805

These opportunities were of the type that would interest all practicing physicians. None were given for specialists only. The courses were both clinical and didactic or both. There were 74 courses offered devoted exclusively to didactic instruction. The fees ranged from $5 to $200. The majority of the fees were less than $50. In 42 instances no fee was charged.

The increasing interest in courses of less than five days' duration was evidenced in that there were 128 more opportunities for this type of training than given in the comparable previous period. The attendance exceeded that of the session 1951-1952 by 1,998. The total attendance reported for 295 of the 324 courses offered was 9,452. Scheduled courses in this group that were canceled numbered 43.

TABLE 37.—*Postgraduate Courses of Five Days or Longer, 1952-1953*

Subject	No. of Courses Given
Allergy	7
Anatomy	40
Arthritis	3
Anesthesiology	22
Bacteriology	13
Basic Sciences	12
Biochemistry	1
Cardiovascular Disease	28
Dermatology and Syphilology	9
Diabetes	4
Electrocardiography	22
Electroencephalography	3
Endocrinology	1
Endoscopy	9
Fractures	4
Gastroenterology	12
Hematology	11
Histology	2
Industrial Medicine	6
Internal Medicine	49
Malignant Disease	7
Medicine, General	53
Neurology and Psychiatry	31
Obstetrics and Gynecology	48
Ophthalmology	15
Orthopedic Surgery	14
Orthopedics	8
Otolaryngology	35
Otology	11
Parasitology	6
Pathology	47
Pediatrics	41
Physical Medicine	7
Physiology	28
Poliomyelitis	2
Proctology	11
Public Health	19
Pulmonary Disease	17
Radiology	51
Surgery	79
Thoracic Surgery	1
Urology	14
Venereal Disease	2
Total	805

Courses of Five Days' Duration or Longer.—In centers where ample clinical facilities were available 805 postgraduate courses of five days' duration or longer were offered in 30 states and the District of Columbia during 1952-1953. The states that provided these opportunities and the number of courses that were given in each state are recorded in table 36.

The 805 programs varied from refresher courses of five or more days to intensive courses extending over several months. Courses in 43 subjects were given. Table 37 lists the subjects covered. For this type of training the total attendance was 23,793.

In 115 instances courses of five days' duration were offered. There were 374 courses given that were of more than five days' duration but less than one month, 166 courses ranged from one to three months, and in 150 instances the courses varied in length from four months to three years. Included among the 150 courses were 26 eight month courses, 14 covering 9 months, 35 one year in length, and one of three years. In 36 instances courses were arranged to suit the convenience and the time of the applicant.

TABLE 38.—*Clinical Conferences, Graduate Assemblies, Study and Circuit Courses and Seminars, 1952-1953*

State Where Given	No. of Courses	State Where Given	No. of Courses
Alabama	2	Montana	3
California	17	Nebraska	1
Colorado	5	New York	129
Connecticut	2	North Carolina	5
Delaware	2	Ohio	6
District of Columbia	2	Oklahoma	9
Illinois	9	Oregon	14
Indiana	1	Pennsylvania	1
Iowa	1	South Carolina	1
Kansas	3	Tennessee	5
Louisiana	1	Texas	7
Maryland	3	Vermont	6
Massachusetts	8	Virginia	1
Minnesota	1	Washington	1
Mississippi	2	Wisconsin	1
Missouri	4		
Total			253

Medical school facilities were used for 658 courses, hospitals for 46, and clinics for 6. In many instances two or all three of these sources were used in presenting an individual course. Hotel and other facilities were used for 30 courses. For 65 courses, the type of facility used was not specified. Instruction was both didactic and clinical for 452 courses, didactic only for 202, clinical only for 41, laboratory and didactic for 30, and unspecified in 80.

TABLE 39.—*Clinical Conferences, Graduate Assemblies, Study and Circuit Courses and Seminars, 1952-1953*

Subject	No. of Courses Given
Allergy	2
Anesthesiology	1
Cardiovascular Disease	17
Dermatology and Syphilology	3
Diabetes	3
Electrocardiography	4
Endocrinology	3
Fractures	1
Gastroenterology	5
Geriatrics	1
Hematology	12
Internal Medicine	3
Malignant Disease	7
Medicine, General	55
Neurology and Psychiatry	42
Nuclear Science	1
Obstetrics and Gynecology	5
Ophthalmology	35
Orthopedics	2
Otolaryngology	14
Otology	1
Pediatrics	5
Physical Medicine	1
Poliomyelitis	1
Pulmonary Disease	6
Radiology	3
Surgery	6
Urology	6
Venereal Disease	8
Total	253

The faculties of medical schools served as instructors in 560 courses. Additional instructors were specialists in their field, chosen mainly from physicians residing within the state in which the course was given but including as well physicians from outside the state. Courses were offered during every month from July, 1952, through June, 1953. In 170 instances they were arranged to suit the convenience of the physician students. Forty-three courses were offered continuously and nine quarterly. There were 43 courses whose enrollment was limited to specialists only. Fees ranged from $5 to $1,040. For 54 courses no fee was charged.

Forty-nine medical schools sponsored this type of training during 1952-1953. Other agencies participating included hospitals, special societies, state and county medical societies, health departments, graduate schools of medicine, and the government agencies.

Attendance for the 805 courses totaled 23,793. By comparison with the previous years, there was a marked decrease in the number of courses offered while the attendance exceeded the previous year by 6,282. Scheduled courses that were cancelled totalled 198.

TABLE 40.—*Postgraduate Courses Offered and Attendance, 1945-1953*

	Less Than Five Days' Duration			Five or More Days			Clinical Conferences, Graduate Assemblies, Study and Circuit Courses and Seminars			Total		
	Total Courses	Number Reporting Attendance	Attendance	Total Courses	Number Reporting Attendance	Attendance	Total Courses	Number Reporting Attendance	Attendance	Total Courses	Number Reporting Attendance	Attendance
1945-1946..........	154	128	4,140	1,070	1,043	19,991	52	52	21,824	1,276	1,223	45,955
1946-1947..........	239	205	16,274	1,291	1,137	23,062	21	21	20,475	1,551	1,363	59,811
1947-1948..........	496	478	31,569	1,279	1,183	24,878	25	25	26,356	1,800	1,686	82,803
1948-1949..........	304	262	16,821	1,074	984	28,507	67	67	38,058	1,445	1,313	83,386
1949-1950..........	161	161	10,523	1,080	1,080	24,087	129	129	40,708	1,370	1,370	75,318
1950-1951..........	420	420	7,438	1,067	1,047	14,890	79	74	23,855	1,566	1,541	46,183
1951-1952..........	206	204	7,454	1,543	1,442	17,511	120	119	40,970	1,869	1,765	65,935
1952-1953..........	324	295	9,452	805	805	23,793	253	241	31,363	1,382	1,341	64,608
Totals..........	2,304	2,153	103,671	9,209	8,721	176,719	746	728	243,609	12,259	11,602	523,999

Clinical Conferences, Graduate Assemblies, Study and Circuit Courses, and Seminars.—In 30 states and the District of Columbia, 253 clinical conferences, graduate assemblies, study and circuit courses and seminars were held during 1952-1953. The states that presented this type of training are listed in table 38. Twenty-nine subjects were covered; table 39 lists the subjects and the number of programs offered. Contributing agencies were speakers' bureaus, medical schools, state and county medical societies, state health departments, and special societies. This type of training varied in length from one day sessions to two weeks for conferences, assemblies, seminars, and study courses. In four states, circuit courses were held. The facilities of hospitals, clinics, medical schools, and hotels were used. Instruction was both didactic and clinical. Instructors included members of medical school faculties and physicians practicing in the state in which the training was given as well as from out of state. These opportunities were offered in every month. The fees ranged from $5 to $250. In 27 instances no fee was charged. The attendance numbered 31,363. In this type of training there was an increase of 122 in the number of opportunities provided, but the total attendance as compared with the previous year showed a decrease of 9,607. Two programs were canceled.

SUMMARY

Some form of continuation study for practicing physicians was reported as being provided during 1952-1953 in all but 10 states. Table 40 summarizes for the three groups the number of courses given, the number for which attendance was reported, and the total attendance, together with comparable figures for seven previous years. While the total number of programs offered during 1952-1953 decreased by 487 as compared with the previous year, the total attendance showed only a decrease of 1,327. The figures reported show that the attendance at many of the individual courses increased in numbers. Further analysis will show that the decrease occurred only in the group of opportunities for training in courses of five or more days' duration.

A study of table 40 reveals some interesting trends. The number of courses offered rose rapidly following World War II, reaching a peak of 1,800 in the 1947-1948 period. A sharp and continuing decline then occurred, swinging upward again in 1950-1951. In 1951-1952 the trend was again upward, reaching the all time high in a seven year period. The figures for 1952-1953 were again downward and appear to show a greater interest in the shorter opportunities provided as contrasted with the more intensive courses.

A similar review of the attendance figures shows a parallel trend in the immediate postwar years, but with a marked drop occurring in the 1950-1951 records even after the number of courses had again started to rise. The number of courses offered in 1952-1953 was the lowest figure in the past five years, although the attendance record does not reveal a comparable decline.

Medical education is a continuous process, and it is the responsibility of every physician to keep abreast of advances in medicine. Data presented in this section is evidence that the physicians of the country recognize this responsibility. Institutions and agencies are continuing to attempt to provide opportunities of current interest. The popularity of programs developed is revealed by the attendance records. However, the variables in type, length and geographical location is another important factor to be given consideration by those currently giving courses or others planning programs.

APPROVED MEDICAL SCHOOLS IN THE UNITED STATES

ALABAMA

Birmingham

Medical College of Alabama, 620 S. 20th St., Zone 5.— Established in 1943 as a division of the University of Alabama. Located in Birmingham in 1944. In 1945 assumed title to Jefferson Hospital and Hillman Hospital, Birmingham. The Medical College of Alabama cares for all indigent patients of the county, maintenance of which is paid to the university on a per diem basis by the county. In 1943 the appropriation included one million dollars for the building of a new medical school which was completed and occupied in the Fall of 1951. With the increased facilities of this new building, the entering class of 1951 was increased to 80 students. First instruction in the Medical College of Alabama started June 4, 1945, with a junior class and this class was graduated in October 1946. On Oct. 8, 1945, the School of the Basic Medical Sciences on the University Campus, established in 1920, and its faculty, were absorbed into the new Medical College of Alabama. The medical college is coeducational. Minimum requirements are three years of college work. Tuition is as follows: for legal residents of Alabama $400 per academic year plus incidental fees of $45. Nonresidents of the state are charged an additional $250 each session. The registration for the 1952-1953 session was 271, graduates 54. The last session began for all classes on Sept. 19, 1952. The session ended for all classes on May 30, 1953. The next session for all four classes will begin Sept. 17, 1953, and will end on May 29, 1954. The dean is James J. Durrett, M.D.

ARKANSAS

Little Rock

University of Arkansas School of Medicine, 1209 McAlmont Street.—Organized in 1879 as the Medical Department of Arkansas Industrial University. Present title in 1899. In 1911 the College of Physicians and Surgeons united with it and it became an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was suspended in 1918 but resumed in 1923. Coeducational since organization. The curriculum covers four sessions of nine months each. Entrance requirements are three years of collegiate work. The B.S. degree is conferred at the end of the second year. The fees for the four years for residents of Arkansas are $380 a year; enrollment is restricted to residents of Arkansas. The registration for the 1952-1953 session was 324, graduates 78. The last session began Sept. 22, 1952, and ended June 15, 1953. The next session will begin Sept. 21, 1953 and will end June 14, 1954. The dean is Hayden C. Nicholson, M.D.

CALIFORNIA

Loma Linda—Los Angeles

College of Medical Evangelists, Loma Linda; Boyle and Michigan Ave., Los Angeles 33.—Organized in 1909. The first class graduated in 1914. The laboratory departments are at Loma Linda; the clinical departments at Los Angeles. Coeducational since organization. Three years of college work are required for admission. The freshman, sophmore, and junior years consist of nine month academic sessions and the senior year will have in addition to the nine month session a four weeks' clinical clerkship during the summer between the junior and senior years. A 12 month internship in an approved hospital is required. The yearly tuitions, including fees, are respectively, $1,292.00, $1,280.50, $1,286.25, $1,303.75. The registration for 1952-1953 was 377; graduates 1953-A, 98; 1953-B, 93. The last session for freshman and sophmore students began on Aug. 31, 1952, and ended June 5, 1953, respectively. The junior session began on Sept. 7, 1952, and ended June 6, 1953. The senior session began June 8, 1952, and was completed June 7, 1953. The next session for freshman and sophmore students will begin Aug. 30, 1953, junior students Sept. 13, 1953, and senior students began June 8, 1953, and will end June 4, 1954, for the freshman and sophomore classes, June 5, 1954 for junior students, and June 6, 1954 for seniors. The president is Walter E. Macpherson, M.D., Los Angeles. The dean is Harold Shryock, M.D., Loma Linda.

Los Angeles

University of Southern California School of Medicine, 3518 University Ave., Zone 7.—Organized in 1895 as the University of Southern California College of Medicine. First class graduated in 1899. In 1908 it became the Los Angeles Medical Department of the University of California. In 1909 the College of Physicians and Surgeons, established in 1904, became the Medical Department of the University of Southern California. Its activities were suspended in 1920; reorganized in May 1928, under present title. Entrance requirements are three years of college work. An internship is required for graduation. Coeducational since organization. Annual fees amount to approximately $865. The registration for 1951-1952 was 275; graduates, 67. The last session began Sept. 15, 1952, and ended June 13, 1953. The next session will begin Sept. 21, 1953, and will end June 12, 1954. The dean is Gordon E. Goodhart, M.D.

San Francisco

University of California School of Medicine, Medical Center, San Francisco 22.—Organized in 1864 as the Toland Medical College. The first class graduated in 1864. In 1873 it became the Medical Department of the University of California. In 1909, by legislative enactment, the College of Medicine of the University of Southern California at Los Angeles became a clinical department but was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged and elective chairs in homopathic materia medica and therapeutics were provided. Coeducational since organization. Three years of collegiate work are required for admission. The work of the first year is given at Berkeley and that of the last three years at San Francisco. The medical course consists of four academic years, each containing two semesters of sixteen weeks each. The fees are $320 per academic year. Nonresidents are charged $250 additional each year. The registration for the 1952-1953 session was 301; graduates 72. The last session began Sept. 22, 1952 and ended June 18, 1953. The next class will begin Sept. 14, 1953 and will end June 17, 1954. The dean is Francis Scott Smyth, M.D.

Stanford—San Francisco

Stanford University School of Medicine, Stanford, 2398 Sacramento Street, San Francisco.—The main buildings are in San Francisco. The laboratories of anatomy, bacteriology and experimental pathology, chemistry and physiology are located on the campus at Stanford, which is thirty miles southwest of San Francisco adjoining the city of Palo Alto. The post office is Stanford. Organized in 1908, when by agreement the interests of Cooper Medical College were taken over. The first class graduated in 1913. Coeducational since organization. Three years of collegiate work are required for admission. The quarter plan is in operation. An internship is a requirement for graduation. The average fee for each of the four years is $780. The registration for 1952-1953 was 243, graduates 62. The last session for all classes began Sept. 29, 1952, and ended June 10, 1953. The next session will begin Sept. 28, 1953, and will end June 9, 1954. The acting dean is Windsor Cooper Cutting, M.D.

COLORADO

Denver

University of Colorado School of Medicine, 4200 East Ninth Avenue., Zone 7.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine were merged Jan. 1, 1911. Coeducational since organization. The entrance requirements are three years of collegiate work. The fees average $525 per academic year. Nonresidents are charged $2,130 additional each year. The registration for 1952-1953 was 313; graduates 73. The last session began Sept. 22, 1952, and ended June 6, 1953. The next session will begin Sept. 18, 1953, and will end June 5, 1954. The Director of the Medical Center is Francis R. Manlove, M.D.; the dean is Robert C. Lewis, Ph.D.

CONNECTICUT

New Haven

Yale University School of Medicine, 333 Cedar Street, Zone 11.—Initial organization of the School of Medicine was completed in 1812 following passage of a bill by the Connecticut General Assembly in 1810 granting a charter for "The Medical Institution of Yale College," to be conducted under joint supervision of the College and the Connecticut State Medical Society. Formally opened in 1913; first degrees conferred 1814. In 1884, with the approval of the Medical Society, the original charter was amended to place the school definitely in the control of the College as the Medical School of Yale College. The name Yale College was changed to Yale University in 1887 and the name of the Medical School was automatically changed. The present name was adopted in 1918. Coeducational since 1916. The requirements for admission are three years of college work. The fees average $829 per academic year. The registration for 1952-1953 was 290; graduates 64. The last session began Sept. 24, 1952 and ended May 30, 1953. The next session will commence Sept. 23, 1953 and will end May 29, 1954. The dean is Vernon W. Lippard, M.D.

DISTRICT OF COLUMBIA

Washington

Georgetown University School of Medicine, 3900 Reservoir Road, N.W., Zone 7.—Organized in 1851. First class graduated in 1852. The degree of Bachelor of Arts or Bachelor of Science or its equivalent from an approved college of arts and sciences is required for admission of non-veterans, but veterans may be admitted with a minimum of 90 semester hours of credit. The fees average $965 per academic year. Registration for 1952-1953 was 441; graduates 95. The last session for freshmen started Sept. 15, 1952, and ended May 23, 1953; the sophomore class started Sept. 15, 1952, and ended May 23, 1953; the junior class started Aug. 27, 1952, and ended May 15, 1953, and the senior class started on May 26, 1952, and ended on May 23, 1953. The date of graduation was June 8, 1953. The next session for freshmen and sophomores will begin Sept. 14, 1953, and end May 22, 1954; the juniors will be in session from Aug. 26, 1953, to May 14, 1954; the senior session began May 25, 1953, and will end May 22, 1954. The date of graduation will be June 7, 1954. The dean is Francis M. Forster, M.D. The regent and dean of students is Rev. Thomas J. O'Donnell, S.J.

George Washington University School of Medicine, 1335 H Street, N.W., Zone 5.—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name "National Medical College." Classes were graduated in 1826 and in all subsequent years except in 1834-1838 and 1861-1863 inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904 by an Act of Congress the title of George Washington University was granted to the institution. Coeducational since 1884. Three years of college work are required for admission. The tuition is $850 per academic year. Registration for 1952-1953 was 347; graduates 92. The last session began Sept.

15, 1952, and ended May 27, 1953. The next session will begin Sept. 21, 1953, and will end on June 9, 1954. The dean is Walter A. Bloedorn, M.D.

Howard University College of Medicine, 520 W Street, N.W., Zone 1.—Chartered in 1867. Organized in 1869. The first class was graduated in 1871. Coeducational since organization. Negro students compose a majority of those in attendance. The minimum requirements are four years of collegiate work, but practically the bachelor's degree. The course covers four years of 33 weeks each. The fees are respectively: $526.75; $516.75; $486.75; $502.25. The registration for 1952-1953 was 289; graduates 67. The last session began Sept. 22, 1952, and ended June 5, 1953. The next session will begin Sept. 21, 1953, and will end June 4, 1954. The dean is Joseph L. Johnson, M.D.

GEORGIA

Atlanta

Emory University School of Medicine, 36 Butler St.—Organized in 1854 as the Atlanta Medical College. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878) taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the School of Medicine of Emory University in 1915. Three years of collegiate work are required for admission. The course of study is four academic years; 36 weeks each in the first and second year; 40 weeks each in the third and fourth years. The fees for each of the four academic years are $800. The registration for 1952-1953 was 286; graduates 73. The last session for freshmen and sophomores began Aug. 28 and Sept. 2, 1952, and ended June 6, 1953. The last session for juniors and seniors began Aug. 4, 1952, and ended June 6, 1953. The next session for freshmen and sophomores will begin Aug. 27 and Sept. 1, 1953, and will end June 5, 1954. The next session for junior and senior classes will begin Aug. 3, 1953, and will end June 5, 1954. The dean is Richard Hugh Wood, M.D.

Augusta

Medical College of Georgia, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. After 1873 it was known as the Medical Department of the University of Georgia. On July 1, 1933, the name was changed to the University of Georgia School of Medicine. On Jan. 18, 1950 it became the Medical College of Georgia. Property transferred to the university in 1911. Classes were graduated in 1833 and all subsequent years except 1862 and 1863. Coeducation was begun in 1920. Three years of college work are required for admission. Fees for 1953-1954, $390.00 per academic year for residents of Georgia, non-residents, $690.00. Only bona fide residents of Georgia admitted (with exception of A. S. T. and V-12 Program students during World War II). The registration for the 1952-1953 session was 314; graduates 81. The 1953-1954 session for the fourth year class will begin Sept. 10, 1953, and end June 5, 1954; the first, second and third year classes will begin Sept. 17, 1953, and end June 5, 1954. The president is Edgar R. Pund, M.D.

ILLINOIS

Chicago

Chicago Medical School, 710 South Wolcott Ave.—Founded in 1912 as the Chicago Hospital College of Medicine. In 1919 the name of the institution was changed to the Chicago Medical School. The school moved from its former location to its present site in the Medical Center in 1930. The Chicago Medical School is a nonsectarian, coeducational institution. It is chartered in the State of Illinois as a nonprofit institution. A collegiate degree is required for admission. A hospital internship is a requirement for graduation. The yearly tuition and fees are, respectively, $664, $872, $837, $649. The registration for 1952-1953 was 280; graduates 63. The last session for freshmen began Sept. 29, 1952, and for sophomores June 30, 1952, and ended June 20, 1953; the junior and senior session began Sept. 29, 1952, and ended for seniors June 27, 1953. The junior class will end Sept. 26, 1953. The next session for freshmen, juniors and seniors will begin Oct. 5, 1953, and will end June 20, 1954, Sept. 26, 1954, and June 26, 1954, respectively. The sophomore class began July 6, 1953, and will end June 25, 1954. The president is John J. Sheinin, M.D. The dean of faculty is F. J. Mullin, Ph.D.

Northwestern University Medical School, 303 East Chicago Avenue, Zone 11.—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891, when the present title was taken. Became an integral part of Northwestern University in 1905. Coeducational since 1926. The requirement for admission is three years of collegiate work. The B.S. in medicine degree may be conferred before the end of the senior year. The total fees are $830 each year. The registration for 1952-1953 was 522; graduates 128. The last session began Oct. 1, 1952 for freshmen, sophomores and juniors and ended June 13, 1953. The senior session began June 18, 1952, and ended June 15, 1953. The next session will begin Sept. 30, 1953, for freshmen, sophomores and juniors and will end June 12, 1954. The senior session began June 17, 1953, and will end June 14, 1954. The dean is Richard H. Young, M.D.

Stritch School of Medicine of Loyola University, 706 South Wolcott Avenue, Zone 12.—Organized in 1915 by acquisition of Bennett Medical College, which had been organized in 1869. Facilities enlarged by the acquisition of Chicago College of Medicine and Surgery. Faculties in basic sciences put on full time basis and assumed name of Loyola University School of Medicine in 1917. Operated as an organic part of Loyola University. Name officially changed to Stritch School of Medicine of Loyola University on April 15, 1948. Coeducational since organization. Three years of collegiate work are required for admission. The fees are $675 a year. The registration for 1952-1953 was 334; graduates 80. The last session for freshmen, sophomores and juniors began Sept. 29, 1952, and ended June 20, 1953; the session for seniors began Sept. 8, 1952, and ended June 6, 1953. The next session will begin Sept. 28, 1953, and will end June 19, 1954, for the first two classes and will begin Sept. 8, 1953, and end June 5, 1954, for juniors, May 29, 1954 for the seniors. The dean is John F. Sheehan, M.D.

University of Chicago, The School of Medicine, 58th Street and Ellis Avenue, Zone 37.—Organized in 1924, as a part of the Ogden Graduate School of Science of the University of Chicago. In 1932, when the University of Chicago reorganized its departments, the medical departments were included in the Division of Biological Sciences. The work of the first two years in the medical courses has been given on the University Quadrangles since 1899; but the last two years were offered only at Rush Medical College, which was affiliated with the university until 1927 when actual work in the clinical departments on the campus began. After that time candidates for the degree of Doctor of Medicine could take the work of the first two years on the campus and the work of the third and fourth years either on the campus or at the Rush Medical College. In June 1940 Rush Medical College became affiliated with the University of Illinois College of Medicine. All undergraduate instruction is now given only on the campus of the University of Chicago. A special function of the school is to train people for making contributions to the advancement of medical science. The requirements for admission are three years of collegiate work. The curriculim covers twelve quarters of work. The tuition fee averages $904. The registration for 1952-1953 was 281; graduates 67. Quarters begin in March, June, September and December of each year. The dean of the Division of the Biological Sciences is Lowell T. Coggeshall, M.D. All correspondence pertaining to student affairs, including admission, should be addressed to Joseph J. Ceithaml, Ph.D., dean of students.

University of Illinois College of Medicine, 1853 West Polk Street, Zone 12.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897. Relationship with the university was canceled in June 1912, and was restored in March 1913, when the present title was assumed. The staff of the Rush Medical College was incorporated in the University of Illinois College of Medicine in 1942 and at the same time Presbyterian Hospital, Chicago, became a teaching unit of the university. Coeducational since 1898. Three years of collegiate work are required for admission. The B.S. in medicine degree may be conferred at the end of the second year. The fees for residents of Illinois average $313 per academic year; nonresidents pay an additional fee of $300. The registration for the 1952-1953 session was 678; graduates 174. The last session began Sept. 29, 1952, and ended June 27, 1953. The next session will begin Sept. 28, 1953, and will end June 26, 1954. The acting dean is Roger A. Harvey M.D.

INDIANA

Bloomington-Indianapolis

Indiana University School of Medicine, Bloomington; 1040 West Michigan Street, Indianapolis 7.—Organized in 1903 but did not give all the work of the first two years of the medical course until 1905. In 1907 by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879) merged into it. The first class was graduated in 1908. Coeducational since organization. Three years of college work are required for admission. The work of the first two semesters is given at Bloomington; the remainder of the work at Indianapolis. Regular fee for two semesters of work is $300 for residents of Indiana and $560 for nonresidents. The registration for the 1952-1953 session was 568; graduates 134. The last session began Sept. 22, 1952, and ended June 9, 1953. The next session will begin Sept. 21, 1953, and will end June 8, 1954. The dean is John D. Van Nuys, M.D., Indianapolis.

IOWA

Iowa City

State University of Iowa College of Medicine, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. Coeducational since 1870. Three years of collegiate work are required for admission. The B.A. degree in the combined course of liberal arts and medicine is conferred. The tuition fee is $256 each year for residents of Iowa and $566 for nonresidents. The registration for 1952-1953 was 453; graduates 103. The last session began Sept. 25, 1952, and ended June 12, 1953. The next session will begin Sept. 24, 1953, and will end on June 11, 1954. The dean is Norman B. Nelson, M.D.

KANSAS

Lawrence-Kansas City

University of Kansas School of Medicine, Lawrence; 39th and Rainbow Boulevard, Kansas City.—Organized in 1880. It offered only the first two years of the medical course until 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medicochirurgical College, founded in 1897. Absorbed Kansas Medical College of Topeka in 1913. The first class graduated in 1906. At present the first year is given on the University campus at Lawrence while the remaining three years are given at the Medical Center in Kansas City, Kansas. Coeducational since 1880. The requirement for admission is three years of collegiate work, four years preferred. The fees are $475 per year; the nonresident fees are $925 per year. The registration for 1952-1953 was 450; graduates 103. The last session began June 3, 1952, and ended May 30, 1953. The next freshman class will begin Sept. 9, 1953. The sophomore class of 1953 will begin its work on Sept. 17, 1953, at Kansas City. The junior and senior classes began June 9, 1953, and will end May 29, 1954. Three-fourths of each junior and senior class is in school each quarter of the school year while one-fourth is on vacation (juniors) or preceptorship (seniors). The dean is W. Clarke Wescoe M.D., Kansas City.

KENTUCKY

Louisville

University of Louisville School of Medicine, 101 West Chestnut Street, Zone 2.—Organized in 1837 as Louisville Medical Institute. The first class graduated in 1838, and a class graduated each subsequent year except 1863. In 1846 the name was changed to University of Louisville Medical Department. In 1907 it absorbed the Kentucky University Medical Department; in 1908, the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. In 1922 its name was changed to the University of Louisville School of Medicine. Coeducational since organization; became non-segregational in 1951. Three years of collegiate work are the minimum requirements for admission. Tuition is $800 for residents of Kentucky and $1,200 for nonresidents, per school year. These figures include special fees excepting graduation fee of $10. The registration for 1952-1953 was 385; graduates 100. (Administratively, the school year is divided into two semesters and students are accepted for matriculation only at the beginning of the first semester. Academically, the senior and junior years are on a trimester basis, the sophomore year is divided into four unequal periods, and the freshman year into three unequal periods.) The last session began Sept. 15, 1952, and ended June 6, 1953. The next session begins on Sept. 14, 1953, and will end on June 5, 1954. The dean is J. Murray Kinsman, M.D.

LOUISIANA

New Orleans

Louisiana State University School of Medicine, 1542 Tulane Avenue, Zone 12.—Organized January 1931 as Louisiana State University Medical Center. Present title in 1939. Coeducational. First session began in October 1931 with students of first and third years. Course covers four sessions of not less than 36 weeks each. A minimum of three years' collegiate work is required for admission. Total fees, $120 each year for residents of Louisiana; additional tuition of $400 each year for nonresidents. The registration for 1952-1953 was 457; graduates 105. The last session began Sept. 2, 1952 and ended June 1, 1953. The next session will begin Aug. 31, 1953 and end May 29, 1954. The dean is William W. Frye, M.D.

Tulane University of Louisiana School of Medicine, 1430 Tulane Avenue, Zone 13.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1836 and in all subsequent years except 1863-1865, inclusive. It became the Medical Department of the Tulane University of Louisiana in 1884. Present title in 1913. Coeducational since 1915. A minimum of three years of collegiate work is required for admission. Total fees average $800 per academic year. The registration for the 1952-1953 session was 514; graduates 128. The last session began on Sept. 15, 1952, and ended on June 2, 1953. The next session will begin Sept. 14, 1953, and will end June 1, 1954. The dean is M. E. Lapham, M.D.

MARYLAND

Baltimore

Johns Hopkins University School of Medicine, 710 North Washington Street.—The nucleus of a medical faculty was constituted in 1883. Systematic postgraduate instruction in pathology and bacteriology was begun in 1886. School was fully organized and opened in 1893. The first class graduated in 1897. Coeducational since organization. The requirement for admission is a college degree. The course extends over four years of eight and one-half months each. The fees averaged $835 per academic year. The registration for 1952-1953 was 294; graduates 76. The last session began on Sept. 29, 1952, and ended June 9, 1953. The next session will begin Sept. 28, 1953, and will end June 8, 1954. The dean is Philip Bard, Ph.D.

University of Maryland School of Medicine and College of Physicians and Surgeons, 522 W. Lombard Street, Zone 1.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine; Baltimore Medical College was merged with it in 1913. In 1915 the College of Physicians and Surgeons of Batimore was merged and the present name assumed. Coeducational since 1918. Three years of college work are required for admission. The tuition fees average $533 for residents of the state; for nonresidents $250 additional. The registration for 1952-1953 was 395; graduates 92. The last session began Sept 18, 1952, and ended June 6, 1953. The next session will begin Sept. 17, 1953, and will end June 5, 1954. The dean is H. Boyd Wylie, M.D.

MASSACHUSETTS

Boston

Boston University School of Medicine, 80 East Concord Street, Zone 18.—Organized in 1873 as a homeopathic institution. In 1874, the New England Female Medical College, founded in 1848, was merged into it. The first class was graduated in 1874. Became nonsectarian in 1918. Coeducational since organization. Applicants are required to present a minimum of three years of premedical work. Total fees averaged $871 per year. The registration for 1952-1953 was 278; graduates 72. The last session for freshmen, sophomores, and juniors began Sept. 15, 1952, and ended May 29, 1953. The last senior class began June 9, 1952, and ended June 8, 1953. The present senior class began June 15, 1953, and will end June 7, 1954. All other classes will be enrolled Sept. 14, 1953, and the session will end May 29, 1954. The dean is James M. Faulkner, M.D.

Harvard Medical School, 25 Shattuck Street, Zone 15.—Organized in 1782. The first class graduated in 1788. At least two years of collegiate work are required for admission. The fees average $850. The registration for 1952-1953 was 529; graduates 148. The last session began Sept. 22, 1952, and ended on June 11, 1953. The next session for freshmen, sophomores and juniors will begin Sept. 28, 1953, and will end June 17, 1954. The senior class began on June 8, 1953, and will end June 17, 1954. The dean is George Packer Berry, M.D.

Tufts College Medical School, 136 Harrison Avenue, Zone 11.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. Coeducational since 1894. A bachelor's degree is required for admission. Enrollment is generally limited to residents of the New England States. The course covers four years Total fees for each of the four years, respectively, $863, $858, $858, $868. The registration for 1952-1953 was 438; graduates 97. The last session for freshmen, sophomores and juniors began Sept. 24, 1952; for seniors June 9, 1952, and all classes ended June 14, 1953. The present session began for the seniors on June 15, 1953, and for the other classes will begin Sept. 23, 1953, and will end June 13, 1954. The dean is Joseph M. Hayman, Jr., M.D.

MICHIGAN

Ann Arbor

University of Michigan Medical School.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed 1915. Coeducational since 1870. The entrance requirements are three years of collegiate work. The fees average $400 per academic year; nonresidents $700 a year. The registration for 1952-1953 was 683; graduates 137. The last session began Sept. 22, 1952, and ended June 13, 1953. The next session will begin Sept. 21, 1953, and will end June 12, 1954. The dean is A. C. Furstenberg, M.D.

Detroit

Wayne University College of Medicine, 1512 St. Antoine Street, Zone 26.—Organized as the Detroit College of Medicine in 1885 by consolidation of the Detroit Medical College (organized in 1868) and the Michigan College of Medicine (organized in 1879). Reorganized with the title of Detroit College of Medicine and Surgery in 1913. The first class graduated in 1869. In 1918 it became a municipal institution under the control of the Detroit Board of Education. In 1934 the name was changed by action of the Detroit Board of Education to Wayne University College of Medicine, as a part of the program of consolidation of the Detroit city colleges into a university system. Coeducational since 1917. Entrance requirement is three years in an accredited college or university. Until further notice, enrollment is limited to residents of the State of Michigan. The fees average $537 for the school year. The registration for 1952-1953 was 268; graduates 59. The last session began Sept. 15, 1952, and ended June 13, 1952. The next session will begin Sept. 14, 1953, and will end June 12, 1954. The dean is Gordon H. Scott, Ph.D.

MINNESOTA

Minneapolis

University of Minnesota Medical School, Zone 14.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery and reorganized in 1888 by absorption of the St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. Coeducational since organization. The entrance requirements are three years of university work. Students are required to meet the requirements for a degree of B.S. or B.A. before receiving the degree of Doctor of Medicine (M.D.), which is granted at the end of the course. Total fees are $352.05 per academic year for residents and $679.55 for nonresidents. The registration for 1952-1953 was 499; graduates 232. The last session began Sept. 29, 1952, and ended July 18, 1953. The next session will begin Sept. 28, 1953, and will end July 17, 1954. The school year of the first three years consists of fall and winter quarters of approximately 11 weeks and a spring quarter of approximately 16 weeks; in the senior year the spring quarter is 11 weeks in length and graduation is in June. The dean of medical sciences is Harold S. Diehl, M.D.

MISSOURI

St. Louis

St. Louis University School of Medicine, 1402 South Grand Boulevard, Zone 4.—Organized in 1901 as the Marion-Sims Beaumont Medical College by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the School of Medicine of St. Louis University in 1903. Completion of three years of college study is the minimum admission requirement, but students presenting meritorious credits in excess of minimum are accepted by preference. The fees average $896.25 per year. The registration for 1952-1953 was 499; graduates 116. The last session began Sept. 16, 1952, and ended June 1, 1953. The next session will begin Sept. 15, 1953, and will end June 1, 1954. The dean is James W. Colbert Jr., M.D.

Washington University School of Medicine, 660 S. Kingshighway, Zone 10.—Organized in 1842 as the Medical Department of St. Louis University. The first class graduated in 1843. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. Coeducational since 1918. Three years of college work are required for admission. The fees average $809. The registration for 1952-1953 was 364; graduates 95. The last session began on Sept. 15, 1952, and ended June 10, 1953. The next session will begin on Sept. 14, 1953, and will end on June 9, 1954. The dean is Robert A. Moore, M.D.

NEBRASKA

Omaha

Creighton University School of Medicine, 302 North 14th Street, Zone 2.—Organized in 1892 as the John A. Creighton Medical College. The first class graduated in 1893. Present title in 1921. Coeducational since organization. Three years of collegiate work are required for admission. The tuition fees average $809 per academic year. The registration for 1952-1953 was 298; graduates 76. The last session began Sept. 16, 1952, and ended June 4, 1953. The next session will begin Sept. 14, 1953, and will end June 3, 1954. The dean is F. G. Gillick, M.D.

University of Nebraska College of Medicine, 42nd Street and Dewey Avenue, Zone 5.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. The University of Nebraska College of Medicine was established in Lincoln in 1883, and in 1902 the Omaha Medical College became a part of the University of Nebraska and has continued with the present title College of Medicine, University of Nebraska. The instruction of the first two years was given at Lincoln and of the last two years at Omaha until 1913, when the work of all four years was transferred to Omaha. Coeducational since 1882. Three years of college work are required for admission. The B.S. degree in medicine is conferred at the end of the second year. The fees average $450 per academic year; nonresidents are charged $615. The registration for 1952-1953 was 344; graduates 87. The last session for seniors began June 30, 1952, and ended June 13, 1953. The last session for freshmen, sophomores and juniors began Sept. 24, 1952, and ended June 20, 1953. The present session for seniors began July 6, 1953, and will end June 12, 1954. The next session for freshmen, sophomores and juniors will begin Sept. 23, 1953, and will end June 19, 1954. The dean is James P. Tollman, M.D.

NEW YORK

Albany

Albany Medical College, 47 New Scotland Avenue, Zone 3.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed educational control. Coeducational since 1915. The requirement for admission is three years of college work. The fees average $825 per academic year. The registration for 1952-1953 was 215; graduates 47. The last session began on Sept. 8, 1952, for freshmen, sophomores and juniors and ended on May 29, 1953, and for the seniors the last session began on June 1, 1952, and ended on May 29, 1953. The present senior class began on June 1, 1953. The next session for the freshmen and sophomores will begin on Sept. 14, 1953, and will end on May 29, 1954. The next session for the juniors will begin on Sept. 8, 1953, and will end on May 22, 1954. The dean is Harold C. Wiggers, Ph.D.

Buffalo

University of Buffalo School of Medicine, 24 High Street.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. Coeducational since organization. The minimum requirement for admission is four years of collegiate work including certain prescribed science subjects. The fees average $828. The registration for 1952-1953 was 274; graduates 59. The last session began Sept. 22, 1952, and ended June 13, 1953, for freshmen, sophomores and juniors, and began on July 7, 1952, and ended June 6, 1953, for seniors. The next session will begin Sept. 21, 1953, and end June 12, 1954, for freshmen; sophomores and juniors, and will begin Aug. 31, 1953, and end June 5, 1954, for seniors. The dean is Stockton Kimball, M.D.

New York City

Columbia University College of Physicians and Surgeons, 630 West 168th Street, Zone 32.—The medical faculty of Columbia College, then known as King's College, was organized in 1767. Instruction was interrupted by the War of the Revolution. The faculty was reestablished in 1792 and merged in 1814 with the College of Physicians and Surgeons, which had received an independent charter in 1807. In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College. This merger became permanent by legislative enactment in 1891. Columbia College became Columbia University in 1896. The medical school has been coeducational since 1917. Three years of collegiate work are required for admission. Fees average $900 per academic year. The registration for 1952-1953 was 463; graduates 116. The last session began on June 9, 1952, for juniors and seniors, and ended on May 29, 1953. The last session for freshmen and sophomores began on Sept. 11, 1952, and ended May 29, 1953. The present session began on June 9, 1953, and June 1, 1953, for the juniors and seniors respectively, and will end May 29, 1954, and will begin on Sept. 10, 1953, for the freshmen and sophomores and will end May 29, 1954. The dean is Willard C. Rappleye, M.D.

Cornell University Medical College, 1300 York Avenue, Zone 21.—Organized in 1898. Coeducational since organization. First year teaching was given formerly to approximately one third of the class at Ithaca but in 1938 this division was discontinued and all instruction is now in New York City. All students matriculated must be graduates of approved colleges or scientific schools or seniors *in absentia* who will receive the bachelor degree from their college on successful completion of one or more years of the medical course. The fees average $925 a year. The registration for 1952-1953 was 338; graduates 84. The last session began for senior students June 23, 1952, and ended June 10, 1953. The freshman, sophomore and junior classes began Sept. 11, 1952, and ended June 10, 1953. The present session for seniors began June 22, 1953, and will begin for the remaining three classes on Sept. 10, 1953, and all classes will end June 9, 1954. The acting dean is Dayton J. Edwards, M.D.

New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 105th Street.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869; the title New York Homeopathic Medical College and Hospital in 1887; the title New York Homeopathic Medical College and Flower Hospital in 1908; the title New York Medical College and Flower Hospital in 1936; the present title of New York Medical College, Flower and Fifth Avenue Hospitals, June 22, 1938. First class graduated in 1861. Coeducational since 1919. Three years of college work is the minimum requirement for admission, but a degree is preferred. The fees average $886 per academic year. The registration for 1952-1953 was 493; graduates 121. The last session began Sept. 15, 1952, and ended June 3, 1953. The next session will begin Sept. 14, 1953, for first and second year students. Third year students began June 8, 1953, and fourth year students May 25, 1953. The president is J. A. W. Hetrick, M.D. The executive dean is Ralph E. Snyder, M.D.

New York University College of Medicine, 477 First Avenue, Zone 16.—This is the undergraduate medical college of the New York University–Bellevue Medical Center which comprises also the Post-Graduate Medical School and the University Hospital. The Medical Department of New York University (then called the University of the City of New York) was organized in 1841 as the University Medical College. In 1898 it united with the Bellevue Hospital Medical College, organized in 1861, under the name of University and Bellevue Hospital Medical College. In 1935 the name was changed to New York University College of Medicine. In 1947 the charter of the university and the statutes were amended establishing the New York University–Bellevue Medical Center, which includes the College of Medicine. Coeducational since 1919. Entrance requirements give preference to those who have completed not less than three full years in an approved college of arts and sciences. The fees average $900 per academic session. The registration for 1952-1953 was 529; graduates 127. The last session began Sept. 15, 1952, and ended May 23, 1953, for freshmen, sophomores and seniors, and Sept. 12, 1953, for juniors. The next session begins Sept. 14, 1953, for freshmen, sophomores and juniors, and Sept. 21, 1953, for seniors, and will end May 22, 1954, for freshmen and sophomores, Sept. 11, 1954, for juniors, and May 29, 1954, for seniors. The dean is Currier McEwen, M.D.

State University of New York College of Medicine at New York City, 350 Henry Street, Zone 2.—Originally organized in 1858 as the collegiate department of The Long Island College Hospital. The first class was graduated in 1860 and the last class in 1930. Was chartered in 1930 as Long Island College of Medicine with the first class graduated in 1931 and the last in 1949. It was merged with the State University of New York on April 5, 1950, and the first class under the University was graduated in June 1950. Coeducational. Three years of collegiate work, including specified courses, are required for admission. The fees are $715 per academic year. The registration for 1952-1953 was 590; graduates 140. The last session for seniors began Sept. 8, 1952, and ended May 29, 1953. The last session for juniors began on Sept. 15, 1952, and ended May 29, 1953. The last session for freshmen and sophomores began on Sept. 15, 1952, and ended June 6, 1953. The next session for freshmen, sophomores and juniors begins on Sept. 21, 1953, and will end on June 12, 1954. For seniors the next session will begin Sept. 14, 1953, and will end on June 5, 1954. The dean is Jean A. Curran, M.D.

Rochester

University of Rochester School of Medicine and Dentistry, 260 Crittendon Boulevard, Zone 20.—Organized in 1925 as the Medical Department of the University of Rochester. Coeducational since organization. Three years of collegiate work are required for admission. The fees are $800 per academic year. The registration for 1952-1953 was 275; graduates 64. The last session began Sept. 15, 1952, and ended June 6, 1953. The next session will begin on Sept. 21, 1953, and will end on June 12, 1954. The dean is Donald G. Anderson, M.D.

Syracuse

State University of New York at Syracuse College of Medicine, 766 Irving Avenue, Zone 10.—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Assumed title Syracuse University College of Medicine in 1875, when a compulsory three year graded course was established. The College of Medicine was merged with the State University of New York on June 26, 1950, when the present title was assumed. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Coeducational since organization. Three years of collegiate work are required for admission. The fees average $800 per academic year. The registration for 1952-1953 was 278; graduates 61. The last session began Sept. 8, 1952, and ended June 6, 1953. The next session will begin Sept. 14, 1953, and end June 12, 1954. The dean is William R. Willard, M.D.

NORTH CAROLINA

Durham

Duke University School of Medicine.—Organized in 1930. The first class was admitted Oct. 1, 1930. Coeducational. The premedical requirement is three years of college work. The academic year consists of three quarters each year. There is no summer quarter between the first and second year, but in the two clinical years the subjects of the autumn, winter, and spring terms are repeated in the summer quarter. This accelerated schedule is optional, and students may take their first year, and three quarters in each of their subsequent years, and receive their certificates in four calendar years, or if they receive permission from the curriculum committee they may at the end of their second year take the clinical quarters given during the summers and receive their certificates in three and one quarter calendar years. The B.S. degree in medicine may be conferred for special work after six quarters. Students are urged to spend three years in hospital or laboratory work after graduation and must give assurance satisfactory to the executive committee that they will spend at least two years. Active duty with the Army, Navy or Public Health Service can replace the second year. The fees are $900 for three quarters. The registration for 1952-1953 was 315; graduates 85. During 1953 the quarters begin Jan. 5, March 30, July 6, Oct. 5, and end March 21, June 13, Sept. 19, and Dec. 19. The next first year class will be enrolled Oct. 5, 1953, and will end June 12, 1954. The dean is Wilburt C. Davison, M.D.

Winston-Salem

Bowman Gray School of Medicine of Wake Forest College, Zone 7.—Organized in 1902 at Wake Forest as a school offering only the first two years of the curriculum. In 1941 the school was moved to Winston-Salem and expanded to a complete four-year medical school under its present name. Coeducational. Three years of college work are required for admission. Clinical departments operate four quarters in the year; however, the plan of operation makes it possible for students to be out of school during one quarter of each of the clinical years for research, for study elsewhere, or for earning money to help defray expenses for their education. Tuition is $750 per school year. The registration for 1952-1953 was 206; graduates 52. The last session for the freshman class began Oct. 6, 1952; sophomores Oct. 6, 1952; juniors and seniors July 14, 1952, and ended for freshmen, sophomores, juniors, and seniors on June 13, 1953. The present junior and senior classes began July 13, 1953, and will end on June 12, 1954. The next freshmen and sophomore classes will begin Oct. 5, 1953, and will end June 12, 1954. The dean is C. C. Carpenter, M.D.

OHIO

Cincinnati

University of Cincinnati College of Medicine, Eden and Bethesda Avenues, Zone 29.—Organized in 1819 as the Medical College of Ohio. Became the Medical College of the University of Cincinnati in 1896. In 1909 the Miami Medical College (founded in 1852) was merged with the University of Cincinnati's Medical School. Coeducational since organization. Three years of collegiate work are the minimal requirements for admission but a bachelor's degree is strongly recommended. Tuition is as follows: for legal residents of Cincinnati $575 a year plus breakage fees ($125 additional for those not legal residents). The registration for 1952-1953 was 354; graduates 89. The last session for freshmen and sophomores began Sept. 22, 1952, and ended May 30, 1953. The last session for juniors and seniors began Sept. 8, 1952, and ended for juniors June 13, 1953, and for seniors May 30, 1953. The next session for juniors and seniors will begin Sept. 8, 1953, and end for juniors June 12, 1954 and for seniors May 31, 1954. The next session for freshmen and sophomores will begin Sept. 21, 1953, and will end May 31, 1954. The dean is Stanley E. Dorst, M.D.

Cleveland

Western Reserve University School of Medicine, 2109 Adelbert Road, Zone 6.—Organized in 1843 as the Cleveland Medical College in cooperation with Western Reserve College the first class graduated in 1844. The school assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. Coeducational since 1919. Students are required to have three years of college work for admission; four years preferred. The fees average $800 per academic year. The registration for 1952-1953 was 324; graduates 78. The last session began Sept. 17, 1952 for freshmen and sophomores, and ended June 6, 1953. For juniors the last session began Sept. 10, 1952, and ended May 29, 1953. For seniors the last session began Aug. 25, 1952, and ended June 10, 1953. The next session for freshmen and sophomores will begin Sept. 23, 1953, and will end June 12, 1954. For juniors the session dates will be Sept. 16, 1953 to June 4, 1954, and for seniors from Aug. 31, 1953, to June 16, 1954. The dean is Joseph T. Wearn, M.D.

Columbus

Ohio State University College of Medicine, Neil and Eleventh Avenues, Zone 10.—The present College of Medicine became a part of The Ohio State University in 1914. It incorporates all the previous medical college interests in central Ohio, standing upon a foundation of six medical schools: The Medical Department of Willoughby University of Lake Erie, 1834-1846; The Willoughby Medical College of Columbus, 1846-1847; The Starling Medical College, 1847-1907; the Columbus Medical College, 1875-1892; The Ohio Medical University, 1892-1907; Starling-Ohio Medical College 1907-1914. Graduates of these colleges by action of the Board of Trustees are considered alumni of The Ohio State University. Coeducational since organization. Three years of collegiate work are required for admission. Tuition fees average $495 per academic year and $225 additional for nonresidents. The registration for 1952-1953 was 516; graduates 84. The last session began Sept. 30, 1952, and ended June 12, 1953. The next session will begin Sept. 29, 1953, and end June 11, 1954. The dean is Charles A. Doan, M.D.

OKLAHOMA

Oklahoma City

University of Oklahoma School of Medicine, 800 North East 13th Street, Zone 4.—Organized in 1900. Until 1910 gave only the first two years of the medical course at Norman, Oklahoma, after which a clinical department was established at Oklahoma City through consolidation with the Medical School of Epworth University. The first class graduated in 1911. Coeducational since organization. A new medical school building and a second teaching hospital became available in 1928, and since September of that year the entire four year course has been given in Oklahoma City. Prerequisites for admission are three years of college work. The fees for residents of Oklahoma are $350; nonresidents $700. The registration for 1952-1953 was 361; graduates 78. The last session began Sept. 15, 1952, and ended June 8, 1953. The next session for freshmen and sophomores will begin Sept. 14, 1953 and will end June 8, 1954. The third year class will begin on Sept. 1, 1953, and end June 8, 1954. The senior session began June 22, 1953, and will end June 8, 1954. The dean is Mark R. Everett, Ph.D.

OREGON

Portland

University of Oregon Medical School, 3181 S. W. Sam Jackson Park Road, Zone 1.—Organized in 1887. The first class graduated in 1888, and a class graduated each subsequent year except 1898. The Willamette University Medical Department was merged in 1913. Coeducational since organization. Entrance requirement is three years of collegiate work. The total fees are $456 a year for residents of Oregon and $180 a year additional for nonresidents, plus a breakage deposit of $15 a year for the first two years. The registration for 1952-1953 was 274; graduates 71. The last session began Sept. 29, 1952, and ended June 13, 1953. The next session will begin Sept. 30, 1953, and will end June 18, 1954. The dean is D. W. E. Baird, M.D.

PENNSYLVANIA

Philadelphia

Hahnemann Medical College and Hospital of Philadelphia, 235 North 15th Street, Zone 2.—Formed by the sucessive union of several institutions. The earliest original charter was obtained in 1848. The name Hahnemann Medical College was taken by one of these institutions in 1867. The present name was assumed in 1885. The first class graduated in 1849. Coeducational since 1941. A minimum of three years of collegiate work in an approved college of arts and sciences is required for admission. Fees for 1953-1954 session are respectively for the first, second, third, and fourth year classes $847, $847, $847 and $877. The registration for 1952-1953 was 385; graduates 83. The last session began for all students Sept. 15, 1952, and ended for the first and second year classes on June 13, 1953; for the third year class June 12, 1953, and for the fourth year class on June 18, 1953. The next session for all classes will begin Sept. 14, 1953, and will end for the first and second year classes June 12, 1954, for the third year class June 11, 1954, and for the fourth year class June 17, 1954. The dean is Charles L. Brown, M.D.

Jefferson Medical College of Philadelphia, 1025 Walnut Street.—Organized in 1825 as the Medical Department of Jefferson College, Canonsburg, Pa. It was chartered with its present title in 1838. Classes have been graduated annually beginning in 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the board of trustees. For the class entering in 1953 the minimum entrance requirements will be three years of college work. The tuition fee averages $850 a year. The registration for 1952-1953 was 662; graduates 160. The last session began for all classes on Sept. 8, 1953. Classes ended for freshmen on June 10, 1953, for sophomores on June 18, 1953, for juniors on June 4, 1953, and for seniors on May 29, 1953. Graduation was June 12, 1953. The next session will begin for all classes on September 14, 1953, and will end for freshmen on June 12, 1954, for sophomores on June 26, 1954, for juniors on June 5, 1954, and for seniors on June 18, 1954. The dean is George Allen Bennett, M.D.

Temple University School of Medicine, 3400 North Broad Street, Zone 40. Organized in 1901. The first class graduated in 1904. Coeducational since organization. Three years of collegiate work are required for admission. The fees average $800 per academic year. The registration for 1952-1953 was 508; graduates 122. The last session began Sept. 5, 1952, and ended June 13, 1953, for freshmen, sophomores, and juniors. The senior class began Aug. 18, 1952, and ended June 18, 1953. The next session will begin Sept. 5, 1953, and will end June 19, 1954. The vice president and dean is William N. Parkinson, M.D.

University of Pennsylvania School of Medicine, Thirty-Sixth and Pine Streets.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772 and 1775-1779, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title was adopted in 1909. It granted the first medical diploma issued in America. In 1916, it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. Coeducational since 1914. Three years of collegiate work are required for admission. The tuition fee is $850, with a deposit of $15, a general fee including student health of $70 and a matriculation fee of $5. The registration for 1952-1953 was 511; graduates 129. The last session began Sept. 2, 1952, and ended June 6, 1953. The next session will begin Sept. 8, 1953, and will end June 12, 1954. The dean is John McK. Mitchell, M.D.

Woman's Medical College of Pennsylvania, 3300 Henry Avenue, Zone 29.—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. At least three years of collegiate work are required for admission and candidates with a degree are given preference. The curriculum covers three years of 36 weeks each and one year of 40 weeks. Total fees are $860 yearly. The registration for 1952-1953 was 183; graduates 46. The last session began Aug. 4, 1952, for fourth year and Sept. 11, 1952, for all other years and ended June 13, 1953. The next session will begin Aug. 10, 1953, for the fourth year and Sept. 14, 1953 for all other classes and will end June 12, 1954. The dean is Marion Fay, Ph.D.

Pittsburgh

University of Pittsburgh School of Medicine, 3941 O'Hara Street.—Organized in 1886, as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. Coeducational since 1899. Entrance requirements are three years of collegiate work. The total fees are $700 each year. The registration for 1952-1953 was 389; graduates 99. The last session began Sept. 8, 1952, and ended June 10, 1953. The next session will begin on Sept. 14, 1953, and will end June 9, 1954. The dean is William S. McEllroy, M.D.

SOUTH CAROLINA

Charleston

Medical College of South Carolina, 16 Lucas Street, Zone 16.— Organized 1823. The first class graduated in 1825. In 1832 a medical college bearing the title Medical College of the State of South Carolina was chartered and the two schools continued as separate institutions until they merged in 1838. Name changed by Act of General Assembly in February 1952 to Medical College of South Carolina. Classes were graduated in all years except 1862 to 1865, inclusive. Coeducational from 1895 to 1912, when privileges for women were withdrawn, being restored in 1917. At least three years of collegiate work are required for admission. The total fees average $432 each year for residents of South Carolina and $1,532 for nonresidents of the state. The registration for 1952-1953 was 260; graduates 57. The last session began on Sept. 25, 1952, and ended June 4, 1953. The next session will begin on Sept. 24, 1953, and will end June 3, 1954. The president is Kenneth M. Lynch, M.D., and the dean is John T. Cuttino, M.D.

TENNESSEE

Memphis

University of Tennessee College of Medicine, 847 Union Avenue, Zone 3.—Organized in 1876, at Nashville as Nashville Medical College. First class graduated in 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis, where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913, Lincoln Memorial University Medical Department was merged in 1914 Coeducational since 1911. Three years of collegiate work are required for admission. The B.S. degree is conferred on students completing the science-medical curriculum of the University. The fees are $450 for residents and $675 for nonresidents. The registration for 1952-1953 was 713; graduates 155. During the next academic year the quarters begin September, January, March, and July. The vice president and dean is O. W. Hyman, Ph.D.

Nashville

Meharry Medical College, Eighteenth Avenue North and Meharry Boulevard, Zone 8 (For Negro Youth).—Organized in 1876 as the Meharry Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1915. Coeducational since 1876. Three years of college work in a school of liberal arts are required for admission. Tuition and fees are: first year $631; second year $621; third year $611; fourth year $626. The curriculum covers four academic years of thirty-four weeks each. In September 1942, Meharry Medical College instituted the quarter system. The registration for 1952-1953 was 260; graduates 60. The last session began on Sept. 29, 1952, and ended on June 8, 1953. The next session begins Sept. 28, 1953, and will end on June 7, 1954. The president is Harold D. West, Ph.D., and the dean is Daniel T. Rolfe, M.D.

Vanderbilt University School of Medicine, Twenty-first Avenue South at Edgehill, Zone 5.—The school was founded in 1874. The first class graduated in 1875. Coeducational since 1925. For matriculation, students must be graduates of collegiate institutions of recognized standing or seniors *in absentia,* who will receive the bachelor degree from their college after having completed sucessfully one year of work in the school of medicine. The course covers four academic years, two of nine months each and two of ten months each. The fees average $810 per academic year. The registration for 1952-1953 was 206; graduates 51. The last session began Sept. 22, 1952, and ended June 7, 1953. The next session will begin Sept. 28, 1953, and will end June 6, 1954. The dean is John B. Youmans, M.D.

TEXAS

Dallas

Southwestern Medical School of The University of Texas, 2211 Oak Lawn.—Organized in 1943. The first class graduated March 20, 1944. Coeducational since organization. Became a branch of the University of Texas, Sept. 1, 1949. The medical school is operated on the regular program offering three terms of twelve weeks each per academic year. The tuition fees for residents average $125 per year. The nonresident fee is $375 per year. Three years of college work are required for admission. The registration for 1952-1953 was 399; graduates 98. The last session began Sept. 8, 1952, and ended June 1, 1953. The next session will begin Sept. 9, 1953 and will end June 9, 1954. The dean is George N. Aagaard, M.D.

Galveston

University of Texas School of Medicine, 900 Strand.—Organized in 1890. The first class graduated in 1892. Coeducational since organization. Three years of collegiate training are required for admission. The fees average $97 per academic year, including health fees for medical care and hospitalization. The registration for 1952-1953 was 595; graduates 138. The last session began on Sept. 16, 1952 for freshmen, Sept. 22, 1952, for sophomores, and July 7, 1952, for seniors, all classes ended June 6, 1953. The next freshman class will matriculate Sept. 15, 1953, and the sophomore and junior classes will matriculate on Sept. 21, 1953, the seniors matriculated July 6, 1953, all classes will end June 5, 1954. The director is Chauncey D. Leake, Ph.D., and D. Bailey Calvin, Ph.D. is dean of student and curricular affairs.

Houston

Baylor University College of Medicine, Texas Medical Center.—Organized in 1900 at Dallas as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. The school was moved to Houston in 1943. Coeducational since organization. The first class graduated in 1903. Entrance requirements are three years of collegiate work. The course covers four years of eight months each. The fees are respectively $775, $765, $750, $775. The registration for 1952-1953 was 365; graduates 88. The last session began Sept. 29, 1952, and ended June 8, 1953. The next session will begin Sept. 14, 1953, and will end May 31, 1954. The dean is Stanley W. Olson, M.D.

UTAH

Salt Lake City

University of Utah College of Medicine.—Organized in 1905. Coeducational since organization. Four year curriculum established, March 1943. Three years of collegiate work are required for admission. The next freshman class will be admitted in September 1953. All subsequent freshmen classes will begin in September of each year. Classes are scheduled during three academic quarters (12 weeks) each calendar year. Applications for admission (complete) must be submitted prior to October 31 preceding opening date. The fees for each quarter average $480 (resident), and $830 (non-resident). The registration for 1952-1953 was 181 and graduates 28. The next session for freshmen, sophomores and juniors will be in September 1953, and end in June 1954. The next session for seniors will begin in September 1954, and end in June 1955. The present session for seniors began in March 1953, and will end in March 1954. The dean is John Z. Bowers, M.D.

VERMONT

Burlington

University of Vermont College of Medicine, Pearl Street, College Park. —Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. Coeducational since 1920. Three years of college work are required for admission. For residents of Vermont the tuition fee averages $567 per session. Nonresidents are charged an additional $250 each session. A $25 fee is charged for the doctor's degree. Registration for 1952-1953 was 184; graduates 42. The last session for freshmen, sophomores and juniors began Sept. 12, 1952, and ended June 14, 1953. The last senior class began June 27, 1952 and graduated June 14, 1953. The present senior class began June 29, 1953; the next freshman, sophomore and junior classes will begin Sept. 11, 1953, and all classes will end June 13, 1954. The dean is George A. Wolf, M.D.

VIRGINIA

Charlottesville

University of Virginia School of Medicine, University Station.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. Coeducational since the session of 1920-1921. Three years of college work are required for admission. For residents of Virginia the tuition and other required fees are $465 per academic year; for nonresidents, $865. The registration for 1952-1953 was 286; graduates 70. The last session began Sept. 19, 1952, and ended June 15, 1953. The next session will begin Sept. 18, 1953, and will end June 14, 1954. The dean is Thomas H. Hunter, M.D.

Richmond

Medical College of Virginia, Twelfth and Broad Streets.—Organized in 1838 as the Medical Department of Hampden-Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. Coeducational since 1918. Classes were graduated in 1838 and in all subsequent years. Three years of collegiate work, as a minimum, are required for admission. Preference, however, is given to applicants with a baccalaureate degree. Fees average $560 per academic year. Nonresidents are charged an additional $275 each year. The registration for 1952-1953 was 366; graduates 100. The last session began Sept. 10, 1952, for second, third and fourth year classes and ended June 2, 1953. The last session for the first year class began Sept. 8, 1952, and ended June 2, 1953. The subsequent session will begin Sept. 10, 1953, for the first year class and Sept. 14, 1953, for the second, third and fourth year classes and will end June 1, 1954. The dean is John B. Truslow, M.D.

WASHINGTON

Seattle

University of Washington School of Medicine, Seattle 5.—Established by the Legislature in 1945 and organized as one of the professional schools in the Division of Health Sciences of the University of Washington in 1946. The first class graduated in 1950. Coeducational. The minimum requirement for admission is three years of collegiate work. Tuition fees are $390 each year for residents of Washington and Alaska and $585 for nonresidents of these areas. Registration for 1952-1953 was 284; graduates 72. The first three classes were limited to 50 students but with the class entering in 1949 this number was raised to 75. The last session began Sept. 22, 1952, and ended June 13, 1953. The next session will begin Sept. 21, 1953, and will end June 12, 1954. The acting dean is James W. Haviland, M.D.

WISCONSIN

Madison

University of Wisconsin Medical School, 418 N. Randall Avenue.—Organized 1907. Gave only the first two years of the medical course until 1925, when the clinical years were added. Coeducational since organization. The entrance requirement is three years of collegiate work. Fees for the first, second and third years $340, for the fourth year $250 per academic year for residents. An additional fee for $320 per year is charged nonresidents. Registration for 1952-1953 was 322; graduates 76. The last session for freshman, sophomore and junior students began Sept. 22, 1952, and ended June 15, 1953. The last senior class began June 30, 1952, and ended June 19, 1953. The next freshman, sophomore and junior classes will begin Sept. 21, 1953, and will end June 14, 1954. The senior class began June 29, 1953, and will end June 18, 1954. The dean is William S. Middleton, M.D.

Milwaukee

Marquette University School of Medicine, *561 North Fifteenth Street,* Zone 3.—Organized in December 1912 by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. Coeducational since organization. Three years of collegiate work are required for admission. The fees are $850 per academic year. The registration for 1952-1953 session was 390; graduates 92. The last session began Sept. 15, 1952, and ended June 5, 1953. The last senior class began June 9, 1952, and ended June 6, 1953. The next session for freshman, sophomore, and junior students will begin Sept. 14, 1953, and will end June 4, 1954. The 1953-1954 session for seniors began on June 8, 1953, and will end June 5, 1954. The dean is John S. Hirschboeck, M.D.

APPROVED MEDICAL SCHOOLS IN CANADA

ALBERTA

University of Alberta Faculty of Medicine, Edmonton.—Organized in 1913. Coeducational since organization. Has given complete medical course since 1924. Tuition for the first and second years is $425 per session, and for the third and fourth years is $450 per session. The registration for 1952-1953 was 231; graduates 52. The last session began Sept. 2, 1952, and ended April 30, 1953. The next regular session will begin Sept. 1, 1953, and end April 30, 1954. The dean is John W. Scott, M.D.

MANITOBA

University of Manitoba Faculty of Medicine, Bannatyne Avenue, Winnipeg.—Organized in 1883 as Manitoba Medical College. First class graduated in 1886, and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. Coeducational since organization. Matriculation requirements include three years of collegiate work in the faculty of arts and sciences of a recognized university. The course extends over four years of eight months each and a hospital internship. The fees average $438 yearly. The registration for 1952-1953 was 273; graduates 72. The last session began Sept. 8, 1952, and ended on May 15, 1953. The next session will begin on Sept. 14, 1953, and will end on May 22, 1954. The dean is Lennox G. Bell, M.D.

NOVA SCOTIA

Dalhousie University Faculty of Medicine, Morris Street, Halifax.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College, in 1885. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the university. First class graduated in 1872. Coeducational since 1871. Requires for matriculation two years of arts. The regular medical course covers four years and a hospital internship of one year approved by the medical faculty. The fees average $415 yearly; nonresidents $250 additional fee. The last session for freshmen, sophomores and juniors began Sept. 2, 1952, and for seniors May 5, 1952; all classes ended May 12, 1953. The registration for 1952-1953 was 216; graduates 56. The next session for all classes will begin Sept. 7, 1953 and will end May 11, 1954. The dean is H. G. Grant, M.D.

ONTARIO

Queen's University Faculty of Medicine, Kingston.—Organized in 1854. First class graduated in 1855 and a class graduated each subsequent year. The course consists of six sessions of 32 teaching weeks, the sixth session being devoted entirely to clinical work in the hospitals affiliated with the University. The latter is not considered an internship. Fees for each of six years amount to $420.50. The degrees awarded are M.D., C.M. Freshman will be admitted annually. Registration for 1952-1953 was 362; graduates 57. The last session began Sept. 15, 1952 and ended May 13, 1953. The next session will begin Sept. 14, 1953, and will end May 12, 1954. The last convocation was held June 6, 1953. The dean is G. Harold Ettinger, M.D.

University of Ottawa Faculty of Medicine, Ottawa.—Organized in September, 1945. The degree of M.D. is conferred after 1 year premedical studies, 4 years medicine and 1 year of internship. The minimum academic requirements for admission to the premedical year are the Ontario grade 13 honour matriculation, or equivalent certificates. Students who have obtained their bachelor degree in arts or in science and who have completed the required courses in biology, chemistry, and physics may be admitted to the first year of medicine. The registration for 1952-1953 in the medical and premedical years was 251. The next session for the premedical year will begin on Sept. 10, 1953, and for first, second, third, and fourth medical years, on Sept. 8, 1953. Internship is from May 1 to May 1. The session for the premedical year will end in May, 1954, for first, second, and third medical years in June, 1954, and the fourth medical year in April, 1954. Students graduate in the first week of June. The dean is A. L. Richard, M.D.

University of Western Ontario Faculty of Medicine, 346 South Street, London.—Organized in 1881 as the Western University Faculty of Medicine. First class graduated in 1883 and a class graduated each subsequent year. Present title in 1923. The Faculty of Medicine has been under the control of the Board of Governors of the University of Western Ontario since 1913. Coeducational since 1913. The normal course of study covers two honor college years of nine months each and four years of nine months each in the Faculty of Medicine. The total fees to residents of Canada for the last four years are $550 a year. The registration for 1952-1953 was 238; graduates 61. The last session began Sept. 8, 1952, and ended May 20, 1953. The next session begins Sept. 14, 1953, and ends May 26, 1954. The dean is J. B. Collip, M.D.

University of Toronto Faculty of Medicine, Toronto 5.—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University Medical Department and in 1903 it absorbed the Medical Faculty of Trinity University. Coeducational since 1903. The degree of M.D. is conferred after 4 years in the study of medicine. Admission to the medical course is gained following honour matriculation and after two years in the study of premedical requisites in the University of Toronto. A certain number are admitted each year to the first medical year who hold arts degrees from recognized universities and who have covered the necessary work in the humanities and sciences. The B.Sc. (Med.) degree may be conferred for special work or investigation as a graduate degree, or under certain circumstances for an extra year's work as an undergraduate. The registration for 1952-1953 in the medical and premedical years was 883; graduates 162. The next session for first and second premedical years will begin on Sept. 23, 1953 and for first, second, third and fourth medical years on Sept. 21, 1953. The session for premedical years will end on May 1; 1954, and for medical years on May 15, 1954. Students will graduate annually in June. The dean is J. A. MacFarlane, M.B.

QUEBEC

McGill University Faculty of Medicine, 3640 University Street, Montreal.—Founded in 1823 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-1839, owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop's College. Coeducational since 1917. Three years of collegiate work are required for admission. The total fees for each of the four medical years are $593. The registration for 1952-1953 was 442; graduates 115. The last session began Sept. 3, 1952, and ended May 30, 1953, for the first three classes and May 2, 1953, for the senior class. The next session will begin Sept. 9, 1953, and will end June 5, 1954, for the first three classes and May 1, 1954, for the seniors. The dean is G. Lyman Duff, M.D.

University of Montreal Faculty of Medicine, 2900 Mount Royal Boulevard, Montreal.—Organized in 1843 as the Montreal School of Medicine and Surgery. In 1891, by Act of Parliament, was merged with the Faculty of Medicine of Laval University at Montreal (organized in 1878). Present name by Act of Parliament in 1920. A class was graduated in 1843 and each subsequent year. Coeducational since 1925. The requirements for admission are: B.A. degree or its equivalent, with a supplementary year in the Faculty of Pure Science or an entrance examination on the premedical subjects. An internship is required for graduation. The fees are $390 yearly for residents, and $465 yearly for nonresidents. The registration for 1952-1953 was 414; graduates 89. The last session began Sept. 9, 1952, and ended May 22, 1953. The next session will begin Sept. 10, 1953, and will end May 23, 1954. The dean is Wilbrod Bonin, M.D.

Laval University Faculty of Medicine, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 the Laval University Faculty of Medicine; first class graduated in 1855, and a class graduated each subsequent year. The premedical requirement is a B.A. degree. The medical course is six years in length, lincluding a one year internship in affiliated teaching hospitals. The first year (premedical) may be avoided by a special examination The fees for each of the medical years average $400 for residents of Canada. Nonresidents are charged an extra fee of $200 each year. The registration for 1952-1953 was 603; graduates 108. The last session began Sept. 15, 1952, and ended June 1, 1953. The next session will begin Sept. 14, 1953, and will end June 5, 1954. The dean is Charles Vézina, M.D.

APPROVED SCHOOLS OF THE BASIC MEDICAL SCIENCES IN THE UNITED STATES

MISSISSIPPI

University

University of Mississippi School of Medicine.—Organized in 1903. Coeducational since organization. A clinical department was established at Vicksburg in 1908 but was discontinued in 1910 after graduating one class. Entrance requirement is three years of collegiate work. Fees average $410.50 annually. There is a nonresident additional fee of $200. The school operates on an accelerated program by accepting two freshman classes each session. Registration for 1952-1953 was 109 The last session for freshmen began July 14, 1952, and ended May 2, 1953. An additional freshman class was admitted Jan. 5, 1953, and will end Oct. 10, 1953. The sophomore session began May 26, 1952, and ended Jan. 31, 1953. An additional sophomore session began Oct. 27, 1952, and ended July 3, 1953. The dean is David S. Pankratz, M.D.

MISSOURI

Columbia

University of Missouri School of Medicine.—Organized at St. Louis in 1845; was discontinued in 1855 but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. Coeducational since 1872. The entrance requirement is three years of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. Total fees for the first year are $249, for the second year $235. The registration for 1952-1953 was 83. The last session began Sept. 11, 1952, and ended June 7, 1953. The next session will begin Sept. 15, 1953, and will end June 12, 1954. The dean is Roscoe L. Pullen, M.D.

NEW HAMPSHIRE

Hanover

Dartmouth Medical School.—Organized by Dr. Nathan Smith in 1797. The first class graduated in 1798. It is under the control of the Trustees of Dartmouth College. Courses of the third and fourth years were discontinued in 1914. Three years of college work and candidacy for the bachelor's degree are required for admission. Candidates for the A.B. degree in Dartmouth College may substitute the work or the first year in medicine for that of the senior year. The tuition is $800 for each year. The registration for 1952-1953 was 48. The last session began on Sept. 21, 1952, and ended June 14, 1953. The next session will begin Sept. 20, 1953, and will end June 13, 1954. The dean is Rolf C. Syvertsen, M.D.

NORTH CAROLINA

Chapel Hill

University of North Carolina School of Medicine.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department in Raleigh. The first class was graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Coeducational since 1914. Three years of college work are normally required for admission. The tuition is $600 per year for residents; for nonresidents an additional $600 per year. The registration for 1952-1953 was 167. The North Carolina legislature in 1947 appropriated funds for the expansion of the school to the full four years. The first senior class will graduate June 7, 1954. The last regular session began Sept. 22, 1952, and ended June 8, 1953. The next session will begin Sept. 18, 1953, and will end June 7, 1954. The dean is W. Reece Berryhill, M.D.

NORTH DAKOTA

Grand Forks

University of North Dakota School of Medicine.—Organized in 1905. Offers only the first two years of the medical course. Coeducational since organization. Three years work in a college of liberal arts are required for admission. The B.S. degree in combined arts-medical course is conferred at the end of the second year. The fees are $126.50 each year for resident students and $206.50 for nonresidents. The registration for 1952-1953 was 72. The last session began Sept. 15, 1952, and ended June 9, 1953. The next session will begin Sept. 18, 1953, and will end June 5, 1954. The dean is Theo. H. Harwood, M.D.

SOUTH DAKOTA

Vermillion

University of South Dakota School of Medical Sciences.—Organized in 1907 as the University of South Dakota School of Medicine. Present title in 1937. Coeducational since organization. Offers only the first two years of the medical course. Three years work in a college of liberal arts are required for admission Students who complete the third year of premedical work in the College of Arts and Sciences at the University of South Dakota may apply the work of the first year of medicine to an A.B. degree: The B.S. degree is conferred at the end of the second year on those students who do not hold a combination (Arts and Sciences and Medicine Course) A.B. degree. The tuition is $270 for the first year residents and $360 for second year residents; $480 for first year nonresidents, and $570 for second year nonresidents. Registration for 1952-1953 was 63. The last session began Sept. 1, 1952, and ended June 4, 1953. The next session for first and second year students will commence Sept. 1, 1953, and will end June 5, 1954, for first year students and will end June 30, 1954, for second year students. Following the didactic work in the second year, the sophomores spend a three week period of clerkship at the three Sioux Falls hospitals. After this they are assigned to a physician in general practice in the state for a three-week preceptorship program. The dean is W. L. Hard, Ph.D.

WEST VIRGINIA

Morgantown

West Virginia University School of Medicine.—Organized in 1912. Gives the first two years of the medical course, but agreement has been made for the transfer of 25 students each year to the Medical College of Virginia. Coeducational since organization. Entrance requirements are three years of collegiate work. The B.S. degree is conferred at the end of the second year. Fees for residents of the state are, respectively, $258 and $268; nonresidents, $442 additional each year. The registration for 1952-1953 was 60. The last session began Sept. 15, 1952, and ended June 1, 1953. The next session will begin Sept. 14, 1953, and will end May 31, 1954. The dean is Edward J. Van Liere, M.D.

APPROVED SCHOOL OF THE BASIC MEDICAL SCIENCES IN CANADA

SASKATCHEWAN

University of Saskatchewan School of Medical Sciences, Saskatoon.—Organized in 1926. Coeducational. Offers the first two years of the medical course. Two years of university premedical work is required for admission. The B.A. degree is conferred at the end of the second year. The fees are $380. The registration for 1952-1953 was 61. The last session for freshmen began Sept. 24, 1952, and ended June 17, 1953. The next session will begin Sept. 23, 1953, and will end June 9, 1954. The dean is J. Wendell Macleod, M.D.

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FIFTY-THIRD ANNUAL REPORT ON MEDICAL EDUCATION

In this issue of THE JOURNAL is the 53rd Annual Report on Medical Education in the United States and Canada prepared by the Council on Medical Education and Hospitals as a public service. Among the most important and interesting events of the past year are those that reflect the critical reevaluation to which the whole of medical education has been subjected since the end of the war. A considerable number of innovations made last year by the schools and plans for revision of programs are listed in this report. The one certain to attract the most attention is the experimental program of undergraduate medical education inaugurated at Western Reserve University, where the traditional departmental approach to teaching has been abandoned and the entire curriculum organized on the basis of multidisciplined, correlative teaching. A brief outline of this experimental program is contained in this report, and a fuller discussion of its present development will be found in the Proceedings of the Annual Congress on Medical Education and Licensure.

The wide and intense interest in improving medical education was also reflected in the First World Conference on Medical Education, which was held in London, England, in August. Men from all parts of the world met at this conference to pool their experiences and to discuss major educational problems of importance in medicine.

The most urgent problem, one which has faced the medical schools ever since the end of World War II, is the financial one. Although large sums have been expended for the development of facilities and for seven consecutive years budgets of the schools have steadily increased, there remains an urgent need for additional funds. The increases in available funds have not been distributed uniformly among the schools, and many schools are in need of capital funds for the improvement and expansion of their facilities, especially those for the basic medical sciences. Increases in operating budgets have been offset in some measure by increases in costs and in the educational and service responsibilities of the schools.

In an effort to estimate the financial needs of the schools for operating funds, the Council on Medical Education and Hospitals and the Association of American Medical Colleges have instituted an intensive study of the problem. It is hoped that the results of this study will be available late this year or early in 1954. Recent information on the cost of attending medical school, as might be expected, shows there has been a definite increase in cost since similar data were collected three years ago. The average cost of attending medical school this year was $2,000 as compared with $1,800 three years ago.

This year for the first time, the schools were requested to furnish data on the total amounts of scholarship and loan funds that are available to their undergraduate medical students. There was great variation in the sums available for these purposes. While some schools are fortunate in having access to rather large funds, the average amount available for scholarships was only $12,014 and the average for loan funds was $41,201. The smallest scholarship fund reported was $300, and the smallest loan fund was $500. It is apparent that a certain number of schools can offer little assistance to students needing financial help. In fact the small amounts of funds make it appear that in some instances no vigorous effort has been made to obtain money for these purposes.

The 1952 freshman class and the expected freshman class for 1953 are both slightly smaller than the record class of 1951. This leveling off after a long period of marked and progressive growth in the size of entering classes is interpreted as a readjustment by the schools to near capacity operation. When expansion programs now under way are completed and when new medical schools now in the final stages of development are in full operation, there will be further increases in the size of the entering class. Total student enrollments will continue to advance, since the entering class, although somewhat smaller than that of the previous year, was still larger than the graduating senior class.

Special attention is directed to the fact that, for the second year, the number of graduate students and physicians enrolled in courses leading to graduate degrees in the basic medical sciences has decreased. There has been a total decrease, for the two year period, of 27%. The decline in the ranks of potential teachers in these vital areas, where teachers are already in short supply, is a matter of grave concern, for, unless the supply of basic science teachers can be increased, it will not be possible to continue to expand facilities for training physicians and the quality of existing programs is certain to suffer. This situation helps to highlight the financial problem of the medical schools. For, while it is conceded that salaries in basic science departments are in many instances higher than salaries of similar ranks in other university departments, they still are not high enough to compete successfully with the opportunities available in clinical medicine, in industry, and in certain other professional fields.

It is obviously impossible to predict what demands national defense will make on medical education in the near future. The present truce in Korea may result in some reduction or delay in calling up of physicians under the amended "Doctor-Draft" law of 1953. However, the long-term needs of national defense are such that, for the forseeable future, virtually all medical students deferred from military service for the purpose of completing their medical education should expect, on completion of their internships, to serve with the armed forces.

FINAL REPORT OF SURVEY OF MEDICAL EDUCATION

"Medical Education in the United States at Mid-Century," the final report of the Survey of Medical Education, is now available in book form.[1] This volume will be of the greatest interest not only to those directly involved in medical education but also to practicing physicians who are frequently called on to interpret medical education and the problems of medical schools to the citizens of their communities.

The survey was organized in 1947 by the Council on Medical Education and Hospitals and the Association of American Medical Colleges. Its purpose was to evaluate critically the present programs of the medical schools, to determine the degree of success with which they are meeting their social and educational responsibilities, and to assess, in their broad aspects, the future responsibilities of medical education.

The attainment of these objectives has been a tremendous task, requiring detailed and comprehensive study of all aspects of the activities of medical schools. Data on which the report is based were obtained from an intensive first-hand study of 41 representative schools by the survey staff, from questionnaires sent to all of the medical schools in the United States, and from information accumulated over a period of many years by the Council on Medical Education and Hospitals and the Association of American Medical Colleges.

The report covers the function of the medical schools in education, research and service, finances, administrative organization policies and practices, curriculum and teaching methods, and advanced education, including internship and residency training, graduate training in the basic medical sciences, and postgraduate training. These programs are critically analyzed and recommendations made for their improvement.

Among the significant contributions of the report is its portrayal of the multiplicity and complexity of the responsibilities that are borne by a modern medical school. The rapid evolution of modern science and its application to medicine, together with the sweeping changes that have occurred in recent decades in the social milieu, have profoundly affected the teaching of medical science and its applications. These changes have created, for medical education, unprecedented problems for which there is no easy solution. The rapid expansion of research programs, particularly in the past 15 years, and the service obligations in which medical schools have become involved have placed strains on their finances that have impaired and even jeopardized the basic undergraduate educational programs. The report makes evident the need for clear definition and delineation of the scope of activities that should be undertaken by the medical schools and indicates methods by which the schools may improve their situation.

The enormous expansion in scientific knowledge, much of it revolutionary in character, and the attempt to incorporate large amounts of this material in the traditional pattern of medical education has distorted and overburdened the curriculum. There is a great need for new thinking in this area and for extensive revision of the curriculum. It is also apparent that, if the schools are to be successful in producing physicians competent to apply modern medical science and to advance it, premedical training must be improved and better methods for selection of students to be admitted to medical school must be developed.

The Flexner Report on medical education in the United States, published in 1910, had a revolutionary impact on American medical education. This report, together with the ferment that it stimulated, resulted in the elimination of the proprietary medical schools and the establishment of medical schools on a true university basis. Much critical thinking and hard work have been done by medical faculties in the ensuing years in the development of their programs. Despite the serious problems that now face the schools, the situation is in no way comparable to that of half a century ago, and it can hardly be expected that the present report will result in changes as great as those following the Flexner Report. Nevertheless, the problems now facing the schools call for extensive modification of the programs of the medical schools, and the schools will be assisted tremendously in this undertaking by the critical analyses and the recommendations offered in the report of the survey.

PRIVATE PATIENTS IN MEDICAL TEACHING

A major problem in medical education today is the extent to which private patients can be utilized in the education of medical students, interns, and residents and the best methods of developing teaching programs centered entirely or largely around private patients. A related problem of tremendous interest and importance to many hospitals with few or no service beds is how such hospitals can develop teaching programs that will enable them to compete successfully for competent interns and residents with hospitals maintaining large public wards.

A stimulating analysis and discussion of this important problem is presented in the article "Private Beds in Medical Teaching" by S. Howard Armstrong Jr., which appears in this issue of THE JOURNAL. Armstrong maintains that, provided certain criteria are met, teaching can be carried out successfully with private patients at all levels except possibly with that of the senior residency. These criteria may be summarized as follows: The patients must present the range of serious disease that physicians will encounter later in their careers. Opportunity must be available for students and house staff to follow the course of patients after discharge from the hospital. The members of the staff must be devoted to teaching and willing to make the sacrifice of time and effort that good teaching requires. The attending physicians must be sufficiently secure in their relationships to their patients to share responsibility with junior colleagues. Finally, the attending staff must be sensitive to the difference between mere training and true education.

It is pointed out that the most difficult problems in utilizing private patients involve not the patient but the relationship of physicians to each other. The nature of these problems are analyzed at length in the paper, and examples of their successful solution are cited.

This discussion is notable for its realistic understanding of the problems facing student, intern, resident, full-time teacher, the practicing physician and the patient in the organization of an effective educational program centered around private patients. The prerogatives and interests of the practicing physician in his relationship to his private patients are respected at the same time that his responsibilities to the students, interns, and residents assigned to him are emphasized. The desirability of giving the intern and resident increasing responsibility is balanced against their capacity to assume such responsibility and the welfare and rights of the patient.

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[1] Deitrick, J. E., and Berson, R. C.: Medical Schools in the United States at Mid-Century, New York, McGraw-Hill Book Company, 1953.

No ready-made answer to the whole problem of how private patients may best be utilized is advanced, and the author frankly raises questions to which he does not have the answers. The report was prepared for the practicing physician who wants background information on modern processes and standards of clinical education to strengthen teaching in his own hospital. A careful study of this report by hospital staffs should aid them significantly in an evaluation of the effectiveness and attractiveness of their own teaching programs.

FILTRABLE AGENT CAUSING MOUSE SALIVARY GLAND CARCINOMA

Gross[1] of the Veterans Administration Hospital, Bronx, New York, has recently demonstrated that leukemia developing "spontaneously" in mice of the Ak inbred line is actually caused by a filtrable agent, transmitted directly through the embryo.[2] The presence of the agent in extracts prepared from leukemic organs of Ak mice was demonstrated by a bioassay consisting of the injection of such extracts into mice of the C3H line, known to have been essentially free from spontaneous leukemia. The use of newborn animals for inoculation of the extracts proved to be essential in this work, since it soon became evident that the susceptibility of the mouse to experimental infection with the leukemic agent is for all practical purposes limited to the first few hours after birth. After successful inoculation with the leukemic extracts, the mice that had received the injections remained, at first, in good health, but "spontaneous" leukemia developed after they reached middle age, i. e., after a latency of at least several months, and in some instances after an interval exceeding a year or a year and a half.

When, in more recent experiments, Gross[3] passed the Ak leukemic extracts through porcelain filter candles (Selas), having a very fine porosity (O3), and injected the resulting filtrate into newborn C3H mice, the results were surprising: while 9 of the 84 inoculated animals died from typical leukemia, in 15 others bilateral salivary gland carcinomas developed, unexpectedly, instead of leukemia, arising in multiple foci in the parotid glands. In some of these mice metastatic carcinomas developed in the axillary and inguinal pits. There was, however, in these 15 animals, no general involvement of the lymph nodes, no infiltration of liver, spleen, or other organs, and no pathological changes in either the bone marrow or the peripheral blood picture. The average age of mice in which the salivary gland carcinomas developed was 3.3 months, far below that at which spontaneous leukemia usually develops.

Although salivary gland tumors have been observed, on very rare occasions, to develop spontaneously in old mice of certain inbred strains, such as strain C or A, they have not been recorded in either mice of the C3H line (serving as test animals for inoculations), or those of the Ak line; yet mice of the Ak line served as donors of the leukemic organs for which extracts had been prepared for inoculation of the C3H mice. It is conceivable, therefore, that mice of the Ak line carry two different oncogenic agents. One of these agents would be potentially capable of causing the development of leukemia and the other that of salivary gland carcinomas. Since salivary gland tumors do not develop spontaneously in mice of the Ak line, whereas leukemia is common in these animals, it would follow either that mice of the Ak line are not susceptible to the pathogenic action of the salivary tumor agent or that an interference phenomenon may be responsible for the apparent suppression of the pathogenic potentiality of the salivary gland tumor agent by the simultaneous presence of the leukemic agent. In any event, both agents could be experimentally extracted from leukemic organs of Ak mice. They could be separated by ultracentrifugation at 144,000 × g, the carcinoma agent remaining mainly in the supernate, or by passing the extracts through filter candles of very fine porosity, apparently retaining at least some of the leukemic agent, but passing freely the smaller salivary gland tumor agent. It also appears that the salivary gland tumor agent is slightly more resistant to high temperature than the leukemic agent, heating to 68 C and 65 C for 30 minutes, respectively, being required for inactivation. Both agents were found in normal, healthy Ak embryos, suggesting thereby that both are being transmitted, in mice of the Ak line, from one generation to another.

The implications of these findings for human pathology could be of considerable interest. Should leukemia be caused by a transmissible agent not only in chickens and mice but also in man, the possibility would have to be considered that in man also the leukemic agent may be accompanied by another oncogenic agent, potentially capable of causing some forms of sarcoma or carcinoma. As in mice, in man also such oncogenic agents could be transmitted, in their inactive form, coupled together and not causing any symptoms, from one generation to another. An interference phenomenon might be responsible for the apparent latency of either, or both, agents in most of the carrier-hosts. Occasionally, however, prompted perhaps by an accidental segregation of such agents, an activation of either agent may now and then occur, resulting in the development of leukemia in some, and carcinoma or sarcoma in other members of the same family tree. This hypothesis[4] may explain clinical observations suggesting that in families of patients with leukemia, malignant tumors, such as carcinoma or sarcoma, are commoner than in the average population.

In any event, the discovery of another malignant tumor caused by a filtrable, thermolabile, and transmissible agent adds one more tumor to the impressively growing list of virus-caused neoplasms.

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1. Gross, L.: Biological Properties of Mouse Leukemia Agent, Cancer **6**: 153-158 (Jan.) 1953.

2. Transmissible Leukemia in Mice, editorial, J. A. M. A. **148**: 746 (March 1) 1952.

3. Gross, L.: Filterable Agent, Recovered from Ak Leukemic Extracts, Causing Salivary Gland Carcinomas in C3H Mice, Proc. Soc. Exper. Biol. & Med. **83**: 414-421 (June) 1953.

ORGANIZATION SECTION

STATEMENT BEFORE HOUSE COMMITTEE ON RETIREMENT FUNDS FOR SELF-EMPLOYED PERSONS

Gentlemen: I am Dr. Edward J. McCormick of Toledo, Ohio, where I am engaged in the active practice of medicine. I am President and a member of the Board of Trustees of the American Medical Association. I am appearing here today as a representative of that Association relative to measures currently pending before your Committee which are designed to provide retirement funds for self-employed persons and others not covered by existing pension plans. With me is Frank G. Dickinson, Ph.D., Director of the Bureau of Medical Economic Research of the Association. At the conclusion of my brief statement I should like to have Dr. Dickinson discuss the technical details of the proposals under consideration.

At the outset I would like to state that the American Medical Association has, for a number of years, endorsed the principle of legislation of this type. In the early part of 1948 there came to the attention of the Board of Trustees a movement then under way to promote the enactment of federal legislation under which self-employed persons, including physicians, could provide for their own retirement benefits through the deduction of amounts annually from their taxable income to finance retirement plans. The Board approved this movement with the stipulation that there would be a reasonable limitation on retirement benefits for which provision could be made. This action was commended by our House of Delegates in June, 1948.

In June, 1951, at the annual session of the American Medical Association three resolutions were adopted by the House of Delegates re-emphasizing the Association's endorsement of this principle.

On May 13, 1952, representatives of the Association appeared before this Committee in general support of H. R. 4371 and H. R. 4373, 82d Congress (Dickinson, F. G.: An Analysis of the Keogh-Reed Bill to Encourage Pensions for the Self-Employed, Bulletin 89, Bureau of Medical Economic Research, American Medical Association, 1952). However, at that time various amendments were suggested. The bills which are now pending before your Committee include all of the amendments recommended by the Association at that time.

In June and again in December, 1952, the House of Delegates reiterated its endorsement of these proposals and recommended that each member of the Association give careful study and active support to their passage.

It is the belief of the American Medical Association that physicians, dentists, lawyers, architects, farmers, store owners and the many others who comprise the nation's self-employed have long been neglected in federal tax legislation relating to pensions. The purpose of these bills is to eliminate the discrimination and inequities existing under present tax laws. By extending the tax deferment privilege to the country's 11,000,000 self-employed and also to millions of employees who are not covered by pension plans, this legislation will give them increased incentive to save for their old age during their best earning years.

This legislation will be of particular benefit to physicians who go through a long and costly period of training and whose earnings are bunched into a comparatively short period of years when they are subject to high income tax rates.

The need for such relief was demonstrated recently in the case of Kintner vs. U. S. (107 Fed. Supp. 976) in which the status of physicians in group practice under Section 165(a) of the Internal Revenue Code was in question. Although pointing up the need for the inclusion of physicians, among others, under Section 165(a), the case will not, even if Dr. Kintner's position is upheld, be of significant assistance since less than 5% of private practitioners are involved.

Under the program proposed by the pending bills the amount of each person's pension would be determined by his contributions without one cent being added by the government. In addition, the program would not force a person into idle retirement in order to draw upon his pension fund. Most important, it presents an opportunity for all who can pay for their own retirement to do so.

That, very briefly, indicates the general viewpoint of the American Medical Association toward this legislation. We have collaborated very closely in the development of this legislation with representatives of the American Bar Association, the Association of the Bar of the City of New York and with national organizations of self-employed tax payers who would be afforded some measure of equity taxwise by the enactment of the pending measures. I urge, therefore, that your Committee give favorable consideration to this legislation.

FROM THE SECRETARY'S LETTER

The following item appears in the July 29 issue of the *Secretary's Letter, which is sent by A. M. A. Secretary George* F. Lull to officers of the American Medical Association and to county and state medical associations:

Speaks His Mind on A. M. A. Policy. In a recent issue of the Utah Medical Bulletin, Dr. K. B. Castleton authored a "President's Page" article on the June meeting of the A. M. A. in New York. He concluded his piece with some pertinent statements regarding A. M. A. policies. He said:

"Many doctors are very critical of the A. M. A. leadership and policies. Many feel that the A. M. A. does not adequately represent the private physician, is undemocratic, ultraconservative, and 'asleep at the switch.'

"After attending the last two House of Delegates meetings, I am convinced that the A. M. A. is conscientiously attempting to do the best job possible, not only for the doctors but what is of much greater importance for the people of this country as a whole so far as medical care is concerned.

"I believe it is a democratic organization, its policies being determined by the House of Delegates, the members of whom are elected by us. I am convinced that these men are honest, hard working, unselfish, intelligent men who are devoting an enormous amount of time, thought and energy to our affairs, and we all owe them a great debt of gratitude. Their work I am sure is not appreciated as it should be. If any of you have any doubts along this line I would suggest that you make it a point to visit the House of Delegates meetings during the next few conventions and watch it work. Go along with George Fister and see how much time and how much hard work is involved.

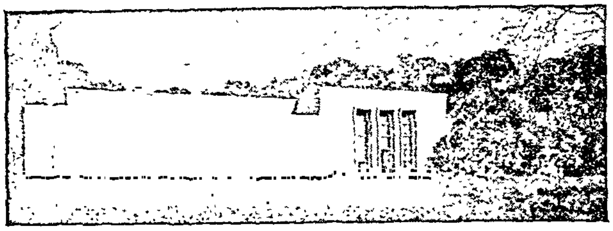
"If any of you do not like the way the A. M. A. is run, you should make your ideas known at your county medical meetings, introducing resolutions which may be carried to the House of Delegates of the Utah State Medical Association, thence to our delegate and thence to the A. M. A. Every member of our organization has the right and privilege to express his own feeling and to inaugurate changes which will be carried through if there are enough members of the society who believe as he does."

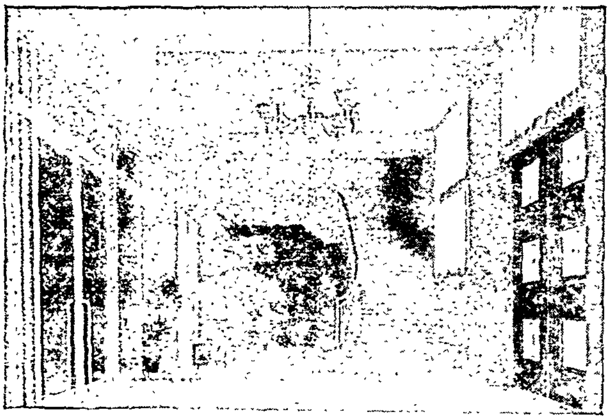
CONFERENCE OF SCHOOL HEALTH LEADERS

The American Medical Association's fourth national Conference on Physicians and Schools, sponsored biannually by the Bureau of Health Education, will be held Sept. 30 and Oct. 1-2 at the Moraine Hotel, Highland Park, Ill. More than 200 representatives of state health departments, state education departments, and state medical societies have been invited to participate in the discussions. Following the theme of "Health Services for *School Children,*" those attending the conference will break up into a dozen different groups to discuss specific problems and develop suggested policies and practices. In addition, medical, public health, and educational leaders from 18 large cities will discuss big city problems in school health.

TEXAS MEMORIAL LIBRARY

The Texas Medical Association has placed its offices with its Memorial Library under one single roof. Dedicated in September, 1952, the large and attractive Indiana-limestone structure, affording 32,676 square feet of floor space, houses the entire headquarters for the Texas association. The main library and its supporting units occupy the entire lower floor and includes a foyer, spacious reading room, rare-book room, the auditorium (named the Sam Thompson Room in honor of Dr. and Mrs. Sam E. Thompson of Kerrville, who have contributed $50,000 for the building and operation of the library), film editing and cutting room, coffee room, and large reference room. The Sam Thompson Room has a complete and modern kitchen for serving the many meetings and film showings held there annually. On the second floor are the executive, business, journal and physician-placement offices, as well as those of public relations, state advisory committee, and the auxiliary. Augmenting these are the mailing and reproduction rooms, central files, and switchboard.





The Memorial Library provides eight hours of service daily to the many association members it serves free of charge. The library also maintains a film loan service, and about 1,000 requests are processed annually. It consists of 150 films for professional persons and 50 for lay audiences.

RECENT A. M. A. PUBLICATIONS

Medical and Hospital Care of Veterans with Non-Service-Connected Disabilities, a Review of American Medical Association policy.

Factbook on Medical Education, based on the 52nd Annual Report on Medical Education in the United States, prepared by the Council on Medical Education and Hospitals.

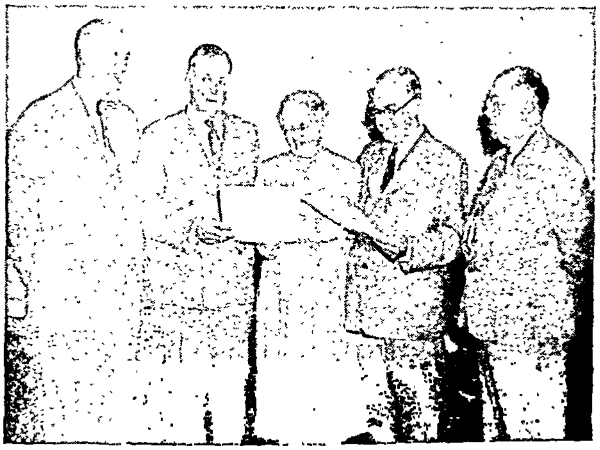
ADVANCE REGISTRATION FOR CLINICAL MEETING

The Membership-Subscription Department will mail advance IBM registration cards (about Nov. 1, 1953) for the St. Louis Clinical Meeting. These cards will be sent to all members in good standing for the year 1953, in the following states: Alabama, Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Ohio, Oklahoma, Tennessee, Texas, and Wisconsin.

All paid A. M. A. members in states not listed above will be sent advance registration cards on request. All requests should be addressed to the Membership-Subscription Department, Advance Registration Section, 535 N. Dearborn Street, Chicago 10, Ill. For a convenient and speedy registration, physicians are requested to present these advance registration cards at the registration booth, Keil Auditorium, St. Louis, on the following registration days and hours: Nov. 30, 10 a. m. to 4 p. m., Dec. 1-4, 8:30 a. m. to 5:30 p. m.

SCROLLS FOR COFOUNDERS OF RURAL HEALTH COUNCIL

Scrolls of appreciation from their friends and associates in rural health work are presented to Mrs. Charles W. Sewell of Otterbein, Ind., and Dr. F. S. Crockett of Lafayette, Ind., the two cofounders of the Council on Rural Health of the American Medical Association. The scrolls, signed by all members of the Council and of its Advisory Committee, were presented during the recent Summer Agricultural Conference at Purdue University. Taking part in the program (left to right) were Dr. Paul D. Crimm of Evansville, president of the Indiana State Medical Association; Dr. George F. Lull of Chicago, Secretary and General Manager of the American Medical Association; Mrs. Sewell; Dr. Crockett; and L. E. Hoffman, associate director of agricultural extension at Purdue and a member of the Indiana Rural Health Committee.



PUBLIC RELATIONS IN THE DOCTOR'S OFFICE

Several medical societies have purchased quantities of the A. M. A. office plaque, "To All My Patients," for distribution to their members. The Dade County Medical Association in Miami ordered 1,000 plaques to be placed in every doctor's office in the city. The Oklahoma State Medical Association requested a supply of plaques for presentation to all of its incoming members. Designed by the American Medical Association, this plaque invites patients to feel free to ask questions regarding the doctor's services or fees. Individual physicians may purchase plaques from the Order Department, 535 North Dearborn Street, Chicago 10, Ill. The price is one dollar per copy.

MEDICAL NEWS

ALABAMA

Dr. Hannon Honored.—At its conference in Ft. Morgan, the Alabama Crippled Children's Rehabilitation Service honored Dr. William C. Hannon, Mobile, for "his outstanding work with crippled children of this area during the past 25 years." It was pointed out that most of Dr. Hannon's work was "where his only reward was the satisfaction of knowing he was helping some unfortunate person to lead an easier and happier life." One of his patients, a 13-year-old boy, was a guest of honor. A television set was presented to Dr. Hannon.

CALIFORNIA

Stanford Medical School to Move to Palo Alto.—The board of trustees of Stanford University, Stanford University-San Francisco, has announced that the university's new medical school will be constructed on the Palo Alto campus within three to five years. According to the president, J. E. Wallace Sterling, the decision to move the medical school is based on the conviction that the future of medical education is dependent on the course of medical science, which has become increasingly dependent on the basic physical sciences and the social sciences. "This key relationship of medical education and science to other scientific fields," he stated, "can best be strengthened and advanced by bringing the medical school into the closest possible physical and intellectual relationship to the whole university." It is anticipated that affiliated facilities, such as the Stanford University Hospitals, Stanford School of Nursing, Lane Medical Library, and Stanford clinics, will be brought to the Palo Alto campus but that the university will continue its postgraduate programs at San Francisco Hospital.

COLORADO

Dr. Marcial to Study Abroad.—Dr. Victor A. Marcial, who is affiliated with Penrose Cancer Hospital, Colorado Springs, left recently to attend the International Congress of Radiobiology in Copenhagen, Denmark, before visiting the Radiumhemmet in Stockholm, Sweden. He plans to study at the Royal Cancer Hospital and the Mayerstein Institute of Radiotherapy in London, the Holt Radium Institute of Manchester, England, and the Radium Institute of the University of Paris (Sorbonne) in France. Dr. Marcial will attend the International Cancer Congress in São Paulo, Brazil, before returning to the United States in 1954. The American Cancer Society recently chose Dr. Marcial as the first recipient of a fellowship to continue work in therapeutic radiology.

ILLINOIS

Personal.—Dr. Guy F. Turner was guest of honor at the annual homecoming in Long Point, where he has practiced medicine for 50 years. Dr. Turner has also served Long Point as postmaster, head of the village board, and president of the high school board of education.

Scientific Speakers Wanted.—The scientific service committee of the Illinois State Medical Society is revising, for the first time since 1947, its list of speakers available to county medical societies. Physicians wishing to be included are urged to send in their names together with a list of the subjects for which they would be available. If the physician does not have a teaching position connected with a medical school, his hospital staff affiliation should be included. Mention should also be made of the type of slides used in talks and titles of movies if available. Submit data to Dr. Louis R. Limarzi, chairman, Scientific Service Committee, Illinois State Medical Society, Room 801, 185 N. Wabash Ave., Chicago 1.

Chicago

Hospital Commemorative Units.—Former members of Passavant Memorial Hospital's medical staff, who had prominent roles in the development of the hospital, will be honored by commemorative units in the new south pavilion. To date the following commemorative units have been organized: Dr. Arthur H. Curtis, professor emeritus of obstetrics and gynecology and former chairman of the department at Northwestern University Medical School and Passavant Hospital, and the late Drs. Marion H. Barker, Sanford R. Gifford, David S. Hillis, and Walter H. Nadler.

Cancer Trust Fund.—The University of Chicago School of Medicine announces receipt of the first income, a $1,000 check, from the Gordon Stephenson trust of $123,325, presented to the university for "cancer research and for the treatment and care of persons afflicted with cancer." The bequest was in the will of the late Gordon Stephenson, former operating superintendent of Sears, Roebuck and Company, an alumnus of the university, who requested that his residuary estate be held in perpetuity and the net income paid to the university. During the first 25 years, the university will receive one-half of the net income with the other half added to the principal of the fund.

IOWA

Pediatrics Conference at Iowa City.—The State University of Iowa College of Medicine, Iowa City, announces a postgraduate conference in pediatrics, Sept. 16-17, sponsored jointly by the department of pediatrics, Iowa Pediatric Society, Maternal and Child Health Division of the State Department of Health, and the State University of Iowa Council on Children and Youth. The Philip C. Jeans memorial program will be presented at 1:30 p. m. Thursday, when remarks will be made by Dr. Jean V. Cooke, Washington University School of Medicine, St. Louis, Leonard A. Maynard, Ph.D., Cornell University, Ithaca, N. Y., and Dr. James R. Wilson, secretary of the A. M. A. Council on Foods and Nutrition, Chicago. At 4 p. m. there will be a eulogy of Dr. Jeans and dedication of the pediatric library in his memory. Other guest speakers at the conference include:

Madelene M. Donnelly, Des Moines, Stillbirths and Neonatal Deaths in Iowa.
Frederick C. Blodi, Iowa City, Pathogenesis of Retrolental Fibroplasis.
James B. Arey, Philadelphia, Pathologic Lesions Responsible for Respiratory Disturbances in the Newborn.
Edmund G. Zimmerer, Des Moines, The State Department of Health and the Welfare of Children in Iowa.
Ralph Bowen, Houston, Texas, Allergy in Identical Twins.
Harold E. Stadler, Indianapolis, Heredofamilial Cerebral Degeneration in Infancy: The Relationship of Systematic Factors to the Pathogenicity.
Ralph Spaeth, Chicago, Tetanus or Serum Sickness.
Charles U. Lowe, Buffalo, Some Effects of Cortisone and ACTH upon Cellular Metabolism.

KANSAS

Chest Physicians Organize.—The recently organized Kansas chapter of the American College of Chest Physicians has elected the following officers to serve for the first year: president, Dr. Charles Pokorny, Halstead; vice-president, Dr. Arthur L. Ashmore, Wichita; secretary-treasurer, Dr. Carl J. W. Wilen, Manhattan; and program chairman, Dr. E. L. Andre Baude, Topeka. Governor for the state of Kansas is Dr. Charles F. Taylor, Norton. Inquiries regarding membership should be addressed to Dr. Taylor at State Sanatorium for Tuberculosis, Norton.

Personal.—Dr. Geoffrey M. Martin, who has returned to Topeka after a year's postgraduate study at Harvard University, has resumed his duties as director of the division of maternal and child health, Kansas State Board of Health. Dr. Patricia Schloesser, who served as acting director of the

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

division while Dr. Martin was on educational leave, is now with the division as pediatric consultant.——Dr. Philip A. Bearg, Topeka, has been transferred from the division of maternal and child health, where he was a pediatric consultant, to the division of preventable diseases, where he will be in charge of epidemiology.

MARYLAND

Award to Baltimore Sunpapers.—According to the U. S. Department of Health, Education, and Welfare, a "mental health bell," cast from shackles once used to restrain mental patients, was awarded to the Baltimore Sunpapers for their "outstanding service in the fight against mental illness." The award, made by Dr. George S. Stevenson, New York, medical director of the National Association for Mental Health, was based on the papers' five year crusade, which resulted in tripling of the operating budget and appropriation of 20 million dollars for Maryland's mental health hospitals. The Sunpapers, Dr. Stevenson noted, "also gave continuing support to setting up community mental health facilities and to appropriation of funds to maintain these facilities." The bell will be kept on display until Mental Health Week, 1954, when it will be awarded to the newspaper, magazine, radio, or television chain or station that has done most to advance mental health in the preceding year.

MICHIGAN

Carl Mitchell Memorial Chapel.—In recognition of "the outstanding Christian devotion and churchmanship" of the late Dr. Carl A. Mitchell, the official board of the Benton Harbor First Christian Church, of which he was a member and elder for nearly 40 years, has designed a "Dr. Carl A. Mitchell Memorial Chapel" in the church's new educational building. All memorial funds now on hand, presented in honor of Dr. Mitchell, and future contributions to the memorial fund, will be used to furnish the chapel. Dr. Mitchell was instrumental in planning and erecting the present church edifice in 1913.

Personal.—Dr. Clark D. Brooks, Detroit, has retired as a member of the Detroit board of education after serving in that capacity for 14 years and twice as its president. Dr. Brooks, aged 73, has been a surgeon on the staff of Harper Hospital.——Dr. Alfred LaBine, Houghton, was recently honored when the Fourth Degree Assembly of the Copper Country Knights of Columbus named its 50 candidate class for him, terming the initiatory group the "Sir Knight Dr. Alfred LaBine Class." Dr. LaBine has served as president of the Upper Peninsula Medical Society and of the Houghton, Keweenaw, and Baraga County Medical Society, and has been chief of staff of St. Joseph's Hospital in Hancock.——Dr. George N. Petroff, Pontiac, was elected as father-of-the-year by the Pontiac Boys' Club, which awarded him a bronze plaque. Dr. Petroff, who has been active in Boys' Club and Boy Scout work, is physician for Pontiac and St. Michael high schools.——Dr. William R. Storer has been appointed St. Joseph County health director, succeeding Dr. Ernest A. Cook, Corunna, who resigned to accept a similar position in West Virginia. Dr. Storer is making his home at North Twin Beach.——A scroll, signed by 200 tuberculosis patients at Saginaw County Hospital, was presented to Dr. Vladimir K. Volk, Saginaw, hospital superintendent, as a tribute for his role in bringing television into the room of every patient at the hospital. A picnic preceded the ceremony. The event marked the official opening of a recreation area for use by ambulatory patients.

MINNESOTA

Annual Fahr Lecture.—The annual George E. Fahr lecture will be delivered by Dr. William F. Hamilton, professor of physiology, Medical College of Georgia, Augusta, on the University of Minnesota campus in Minneapolis at 8 p. m., Sept. 14. The lecture on "The Physiology of Congestive Failure of the Circulation" will be open to all physicians and investigators. Dr. Hamilton will also participate in the "Symposium on Recent Advances in Cardiovascular Physiology and Surgery" that will be presented by the university and the Minnesota Heart Association, Sept. 14-16.

Southern Minnesota Medical Association.—The annual meeting of the Southern Minnesota Medical Association will be held at St. John's Catholic School, Mankato, Sept. 14. The presidential address by Dr. Helmer J. Nilson, North Mankato, will follow remarks by Dr. Orwood J. Campbell, Minneapolis, president of the Minnesota State Medical Association, at the banquet, Mankato Country Club, 6:30 p. m., after which Dr. Leo G. Rigler, Minneapolis, will present "Medical Tour of India." Other speakers include Drs. John C. Mickelson and William S. Chalgren, Mankato; Harlan A. Alexander, Stanley R. Maxeiner, and Ivan D. Baronofsky, Minneapolis; Donald R. Lannin and Edward J. Richardson, St. Paul; Heinz H. Bruhl, Faribault; Robert F. Mears, Northfield; and Edmund C. Burke, Louis E. Prickman, James M. Stickney, Stephen D. Mills, and Henry W. Dodge Jr., Rochester.

MISSOURI

Cardiac Consultation Clinic.—The first clinical session of the Regional Cardiac Consultation Clinic will be held Sept. 16, 9 a. m., at St. John's Hospital in Springfield. The clinic, which is sponsored by the Greene County Medical Society with the cooperation of the Missouri Heart Association, will be held regularly each Wednesday morning at St. John's Hospital. Patients will be accepted only by referral from their physicians. On termination of the study of the patient at the clinic, a report will be sent to the referring physician. Patients from anywhere in southwest Missouri in need of special consultation and who cannot afford such services through regular channels will be admitted to the clinic without charge. The purpose is diagnosis only. The members of the clinic staff will serve without remuneration. Facilities at St. John's Hospital have been made available to the medical society for this program. Staff appointments are made for a three month period, and, in addition to the active staff, all members of the Greene County Medical Society are considered members of the staff to the extent that they are to be available for consultation as the occasion may arise.

MONTANA

Dr. Danskin Honored.—Dr. Melville G. Danskin, Glendive, a past vice-president of the Montana Medical Association, was honored at a public reception at the Methodist Church after he announced his intention to retire from active practice and move to Billings. Dr. Danskin, who has served about 42 years in Glendive and eastern Montana, was appointed county health officer for Dawson County in 1916 and, with the exception of two years, served in that capacity to June 1. Named physician in charge of the Dawson County Hospital in 1916, he has remained in that position. From 1923 to 1927, he was mayor of Glendive and has served as president of the state health officers' association and as the first president of the local Kiwanis Club.

NEW YORK

Albert Fellowships Established.—The establishment of two fellowships for clinical and experimental research has been announced by the trustees of the Jewish Sanitarium and Hospital for Chronic Diseases, Brooklyn. The fellowships, named in honor of the president of the hospital, Mr. Isaac Albert, will be awarded during the fall of 1953. Applicants should write to Arthur Feigenbaum, hospital superintendent, Rutland Road and East 49th St., Brooklyn.

University News.—Dr. A. Harry Rubenstein, who has been affiliated with the State University of New York College of Medicine at Syracuse since 1925, has been appointed professor and chairman of the department of otolaryngology, and Dr. Robert O. Gregg has been named professor and part-time chairman of the department of surgery.——Dr. Gordon D. Hoople, who has been on the staff since 1926, is now professor emeritus of otolaryngology. Dr. Hoople initiated the first full-time medical service to students at Syracuse University. The new speech and hearing center was recently named in his honor.——Dr. Arthur B. Raffl, who joined the staff in 1926 and became professor of surgery in 1946, has been appointed professor emeritus of surgery.

OHIO

Meeting of Anesthesiologists.—The annual meeting of the Ohio Society of Anesthesiologists will be held at the Wade Park Manor Hotel, Cleveland, Sept. 12. Dr. Perry P. Volpitto, Augusta, Ga., will discuss "Management of Anesthesia in Children" and "Problems of Anesthesia in Operative Obstetrics" and will participate in a symposium on intubation, in which the moderator will be Dr. Rolland J. Whitacre, Cleveland, and the other participants Drs. Lloyd E. Larrick, Cincinnati, and Reynold M. Crane, Cleveland.

General Practitioners Meet in Cleveland.—The annual scientific assembly of the Ohio Academy of General Practice will be held at the Hotel Cleveland in Cleveland, Sept. 16-17. As closing features of the scientific program Dr. Duncan E. Reid, professor of obstetrics, Harvard Medical School, Boston, will discuss "Pregnancy Accidents Associated with Alterations in the Hemostatic Mechanism," and Dr. Jerome W. Conn, professor of internal medicine, University of Michigan Medical School, Ann Arbor, will speak on "Spontaneous Hypoglycemia: Differential Diagnosis and Management." At the banquet in the Grand Ballroom, 7 p. m., Wednesday, Dr. George Crile Jr., Cleveland, will present a movie and talk on "Treasure Hunting Holiday."

Personal.—Dr. Marion A. Blankenhorn, professor of medicine, University of Cincinnati School of Medicine, recently served as professor of medicine pro tem at Georgetown University School of Medicine, Washington, D. C., and acted as director of the educational activities of the department of medicine at Georgetown University Hospital and Georgetown University School of Medicine.——Dr. Carl J. Wiggers, who recently retired as director of the department of physiology, Western Reserve University School of Medicine, Cleveland, has become associated with the Frank E. Bunts Educational Institute affiliated with the Cleveland Clinic Foundation.——Dr. Lawrence H. Miller, Granville, was appointed professor of health education and director of student health services at Denison University.——Dr. Max M. Zinninger, associate professor of surgery, University of Cincinnati College of Medicine, delivered the first George J. Heuer lecture in New York, when Dr. Heuer's portrait was presented to the Cornell University Medical College, of which he is emeritus professor of surgery. Dr. Heuer, who now lives in Rye, N. Y., was professor of surgery at the University of Cincinnati College of Medicine from 1922 to 1931. Dr. Zinninger also gave a talk on "Development of the Resident Training System at the Cincinnati General Hospital" for Pi Kappa Epsilon's annual dinner and initiation of new members in Cincinnati.

PENNSYLVANIA

Fifty Year Plaques.—The Luzerne County Medical Society recently awarded 50 year plaques to Drs. Roy Truckenmiller, Freeland, Harry A. Brown, Lehman, Austin L. Hauslohner, Wilkes-Barre, William C. Stiff, Forty Fort, and Wilbur A. Foster, Mountaintop.

Reorganize Alumni Association.—Graduates of Jefferson Medical College of Philadelphia met recently at the Harrisburg Academy of Medicine to reorganize the South Central Pennsylvania Jefferson Alumni Association that had not met since 1941. Dr. Norman B. Shepler, Harrisburg, was elected president; Dr. Roy W. Gifford, Gettysburg, vice-president, and Dr. Raymond C. Grandon, Harrisburg, secretary-treasurer.

Memorial to Dr. Pennell.—A plaque was recently dedicated in honor of the late Dr. Howard Y. Pennell by the x-ray department of the Chester County Hospital, West Chester. Dr. Pennell, who died in 1952, had been associated with the hospital for 54 years; he came there as its first intern. He later became a permanent staff member and director of the x-ray department, which he founded in 1909. Among those participating in the dedicatory ceremonies were Arthur E. James, Ph.D., and Drs. Jacob Gershon-Cohen, Philadelphia, and Louis S. Bringhurst, West Chester.

Appoint Superintendent of Sanatorium.—Dr. Sterling B. Brinkley, Johnstown, will become medical superintendent of the Gaylord Farm Sanatorium in Wallingford, Conn., Oct. 1. He succeeds Dr. David Russell Lyman who, 50 years ago, became the original head of the sanatorium and who will now become medical superintendent emeritus. Dr. Brinkley has been affiliated with the Gorgas Hospital, Ancon, Canal Zone, the Cornell University Medical College, New York, and Yale University, New Haven, Conn. He is a director of the Pennsylvania Tuberculosis and Health Society and of Yale in China and is vice-president of the Pennsylvania Rehabilitation Association. Dr. Brinkley was commanding officer of an infantry division-collecting company in the European theater for two years.

Philadelphia

University News.—Dr. William T. Lemmon has been made a full professor of medicine at Jefferson Medical College of Philadelphia. He had been clinical professor of surgery and served also as assistant professor of applied anatomy.

Meeting on Cytology.—The first annual meeting of the Inter-Society Cytology Council will be held in Philadelphia Nov. 19-20. Those interested in presenting papers pertaining to the cytological method for the diagnosis of cancer and related subjects are urged to send titles, together with an abstract of not more than 300 words, to the chairman of the program committee, Dr. Abraham E. Rakoff, Jefferson Medical College, 1025 Walnut St., Philadelphia 3.

Personal.—Dr. William M. Hart, assistant professor of ophthalmology, Jefferson Medical College of Philadelphia, has been appointed chief of the ophthalmology clinics of the National Institute of Neurological Diseases and Blindness, Public Health Service, Bethesda, Md.——Dr. Garfield G. Duncan left July 30 for a teaching tour in New Zealand and Australia. He will head a three week course in internal medicine under the auspices of the New Zealand Post-Graduate Association in Auckland and will deliver the Cunning memorial lecture on "Undernutrition as Encountered in General Practice" before the Royal Australasian College of Physicians at Dunedin. In Australia he will lecture on "Essential Hypertension" at Sydney.

TENNESSEE

Anonymous Gift to Vanderbilt University.—Dr. John B. Youmans, dean, Vanderbilt University School of Medicine, Nashville, announces that an anonymous donation of $40,000 will be used to establish a laboratory for clinical microbiology. It is anticipated that an additional sum of $15,000 a year for four years soon will be made available from the same source. The laboratory will be under the departmental supervision of Dr. Hugh J. Morgan, head of the department of medicine.

TEXAS

Postgraduate Courses.—The Houston division of the University of Texas Postgraduate School of Medicine offers a 6 week course in diabetes on Tuesday evenings, beginning Sept. 15; a 6 week course in acute infectious diseases Tuesday evenings, beginning Nov. 10; wet surgery clinics for 10 weeks on Friday mornings, beginning Sept. 25; and a 12 week series on cardiology and electrocardiography on Monday evenings, beginning Sept. 28 in Austin. The San Angelo division will hold medical conferences each Sunday, beginning the latter part of September. Information may be obtained from the Dean, University of Texas, Postgraduate School of Medicine, 1400 Outer Belt Drive, Houston 25.

North Texas-Southern Oklahoma Conference.—The program of the North Texas-Southern Oklahoma Fall Clinical Conference will be presented by members of the staff of Johns Hopkins University School of Medicine, Baltimore, at the Wichita Falls Country Club in Wichita Falls Sept. 16. For the morning session Dr. Jack S. Guyton, professor of ophthalmology, will present "Treatment of Squint," Dr. Samuel P. Asper, associate professor of medicine, "Clinical Use of Cortisone and ACTH," and Dr. Alan C. Woods Jr., instructor, "Surgical Treatment of Complications of Cirrhosis." After luncheon followed by a round-table question and answer period, Dr. Asper will speak on "Newer Aspects in Treatment of Thyroid Diseases," Dr. Woods on "Surgical Treatment of Cancer of the Thyroid," and Dr. John T. Grayhack of the Johns Hopkins Hospital staff on "Diagnosis and Treatment of Operable and Inoperable Prostatic Cancer." Dinner at 7:30 p. m. will be preceded by a cocktail hour. The registration fee, $8, includes luncheon, dinner, scientific programs, and entertainment; ticket for lady guest for dinner and the evening program, $4. Address inquiries to Dr. L. Nolan Simmons, 1518 10th St., Wichita Falls.

WEST VIRGINIA

Personal.—Dr. Frank J. Holroyd, Princeton, has been elected president of the state medical licensing board. He succeeds Dr. Walter E. Vest, Huntington, who has been president since the creation of the board in 1949.

Annual Seminar at Bluefield.—The Bluefield Sanitarium will hold its first annual clinical seminar in the staff room, Oct. 2. Discussion periods and exhibits by the departments of urology, clinical pathology, neurosurgery, roentgenology, and ophthalmology and otolaryngology will be included in the program. Guest speaker at the banquet at the Bluefield Country Club will be Dr. George T. Harrell Jr., professor of medicine, Bowman Gray School of Medicine, Winston-Salem, N. C., who will discuss "Myxedema."

WISCONSIN

Diabetes Forum.—The fall postgraduate program at the Marquette University School of Medicine, Milwaukee, will open Sept. 19 with a one day forum in diabetes mellitus, which will be presented by the medical school in cooperation with the Wisconsin Diabetes Association. Dr. William W. Engstrom, associate professor of medicine, will direct the forum. Dr. Francis R. Keating Jr., consultant in medicine, Mayo Clinic, Rochester, Minn., is to be guest speaker. Reservation for the day, which includes luncheon, should be made through the Director of Postgraduate Programs, Marquette University School of Medicine.

HAWAII

Personal.—Dr. Charles L. Wilbar Jr. for 10 years president of the Hawaii Territorial Board of Health, has been appointed assistant health executive of the State of Pennsylvania. Dr. Richard K. C. Lee, assistant health executive of the Hawaii Territorial Department of Health since 1943, and prior to that deputy commissioner of public health since 1937, will succeed Dr. Wilbar as president of the board of health.

Industrial Health Meeting.—The meeting in Honolulu of the Territorial Association of Plantation Physicians, a component society of the Industrial Medical Association, heard Dr. George F. Wilkins, Boston, Industrial Medical Association president, give an address on "The Future of Industrial Medicine." Dr. Earl F. Lutz, Detroit, associate medical director, General Motors, discussed "Health Plans in Big Industry." At the industrial medicine and medical economics panel luncheon, Dr. William H. Wilkinson, Wahiawa, served as moderator, and Drs. Lutz, Edward C. Holmblad, Chicago, Leo Price, New York, Frank Hatlelid, Waialua, Sam Wallis, Lihue, J. Alfred Burden, Paia, and Francis J. Halford, Honolulu, were among the panel participants.

Surgical Wing at Queen's Hospital.—The public subscription campaign to raise the final $600,000 needed to provide a new surgical wing at the Queen's Hospital, Honolulu, was recently concluded. First to memorialize sections of the new building was a retired physician, Dr. Tang L. Wong, who gave $10,000 under a new living memorial plan developed by hospital officials. The total cost of the entire development at the institution will be about $1,400,000. In addition to 14 new operating rooms, a 12 bed postoperative recovery ward, and an auditorium seating 80, the new wing allows the removal of the pediatric unit into fire-resistant quarters and inclusion of an isolation unit, use of former operating rooms as an expanded laboratory with additional research rooms, addition of 106 new beds with replacement of 84 declared unacceptable, and removal of the outpatient clinic to largely expanded quarters in older wings. Dr. Forrest J. Pinkerton headed the solicitation of funds from professional groups in the islands.

GENERAL

Appoint Medical Adviser.—American Leprosy Missions, Inc. (156 Fifth Ave., New York 10) announce the appointment of Robert G. Cochrane, M.D. (Glas.), F.R.C.P. (Lond.), D.T.M. & H. (Eng.), as technical medical adviser. His services will be available to all physicians working in leprosy colonies or clinics connected with Protestant missions and to any others who may solicit his advice. Dr. Cochrane will continue for the present to maintain an office and a laboratory in London but will make periodic trips to Asia, Africa, South America, and the United States.

Antibiotics Award.—At the annual convention of the Society of American Bacteriologists in San Francisco, the 1952 Commercial Solvents Award in Antibiotics, consisting of a gold medal, $1,000, and engraved scrolls, was presented to Ibert C. Wells, Ph.D., Syracuse, N. Y., Edwin E. Hays, Ph.D., Chicago, Dr. Edward A. Doisy, St. Louis, and William L. Gaby, Ph.D., Philadelphia, for their work with Pseudomonas aeruginosa. Their 10 years of research, started at St. Louis University in the early days of World War II, demonstrated that in addition to pyocyanine, Pseudomonas aeruginosa produces several other antibacterial agents. The group worked out methods of isolation, separation, and purification of these agents, defined their physical and chemical properties, proposed structural formulas for them, and, by degradation and synthesis, proved the acceptability of the proposed formulas.

North Pacific Internal Medicine Meeting.—The North Pacific Society of Internal Medicine will hold its annual fall meeting at Harrison Hot Springs, B. C., Canada, Sept. 18-19. The evening preceding the meeting there will be cocktails and a reception, 6-7 p. m. The scientific program is as follows:

Charles N. Holman, Portland, Ore., The New General Hospital at the University of Oregon Medical School.

Joseph H. Delaney, Spokane, Wash., Thyrotoxic Heart Disease.

Russell B. Hanford, Spokane, Wash., Are Vagal Inhibitors of Use in Treatment of Intermittent Atrioventricular Block?

Ralph H. Huff, Tacoma, Wash., Clinical Conditions Simulating Coronary Artery Disease.

Kyran R. E. Hynes, Seattle, Significance of Cardiac Vectors.

Raymond A. McMahon, Portland, Ore., Observations on the Conducting System of Congenital Heart Cases.

E. Murray Burns, Portland, Ore., Emulsifying Agents in Digestive Disorders.

Robert H. Williams, Seattle, Recent Advances Relative to Diabetes.

Hamish W. McIntosh, Vancouver, B. C., Observations on the Electrolyte Metabolism in Stress.

Earl D. DuBois, Portland, Ore., Diagnosis and Treatment of Disturbances Arising from the Sphincter of Oddi.

George A. Boylston, Portland, Ore., Peptic Ulcer of the Pyloric Ring.

Cardiac Grants-In-Aid.—On its fifth anniversary as a voluntary health agency, the American Heart Association announced that, jointly with its affiliates, it had awarded an additional $473,930.59 for 89 research grants-in-aid in the field of heart and blood vessel diseases. The latest awards increase to a grand total of almost 6.5 million dollars the sums spent for research studies by the American Heart Association and its affiliated state and local associations over the five year period. Of the continued grants the largest went to Samuel Gurin, Ph.D., University of Pennsylvania School of Medicine, Philadelphia, $10,500 (how cholesterol and fats are built up by the body with special regard to the role of hormones in this process), and Dr. Albert Szent-Gyorgyi, Marine Biological Laboratories, Woods Hole, Mass., $10,000 (further studies on the molecular changes that occur within muscle during muscular contraction). Highest grants for new projects were awarded to Bernardo A. Houssay, Instituto de Bioligia y Medicina Experimental, Buenos Aires, Argentina, $10,000 (studies on experimental high blood pressure); James D. Ebert, Indiana University School of Medicine, Bloomington, $9,607.50 (the study of two substances, actin and myosin, thought to be important in the work of the heart muscle); and Dr. John J. Osborn, New York University-Bellevue Medical Center, $8,268.75 (use of refrigeration and of a heart-lung machine in temporarily interrupting the circulation to facilitate surgery).

Western Tuberculosis Conference.—The first meeting of the Western Tuberculosis Conference will be held at the Hotel Utah, Salt Lake City, Sept. 17-19. The general sessions will open Thursday, 2 p. m., with a discussion of Indian health problems, after which Dr. Lloyd K. Swasey, Phoenix, Ariz., will serve as chairman for a discussion of "Laws Regarding Sanatorium Care and Isolation of Patients." On Friday morning, which will be devoted to clinics, Dr. Francis J. Weber, Denver, will be chairman for "Future Responsibility of the State and Local Health Departments in Tuberculosis Control Activities" and Dr. Terrell O. Carver, Boise, Idaho, for "The Tuberculosis Control Program in Low Prevalence Areas—In Sparsely Populated Areas." After luncheon Dr. Daniel W. Zahn, Seattle, will preside at the general session. The banquet at 7 p. m. in the Empire Room will be followed by a general session, with Dr. John Z. Bowers, Salt Lake City, presiding. Saturday morning Dr. William H. Oatway Jr., La Vina, Calif., will speak on "Implications of Advances in Medical Diagnosis and Treatment," and Dr. Sidney H. Dressler, Denver, will present "The Denver Study in Retrospect." Dr. George Jacobson, Los Angeles, will address the general session at luncheon Saturday, 12:30 p. m., on routine roentgenograms of general hospital admissions. A special medical session will be held Friday in the Little Theatre, where the following presentations will be made:

John H. McClement, Salt Lake City, Cardiopulmonary Function in Pulmonary Sarcoidosis.
Thomas H. Holmes III, Seattle, Stress and Tuberculosis.
John W. Berry, James C. Bell, and Dick K. Riemensnider, Denver, Place of Slide Culture in Pulmonary Tuberculosis and Suspected Tuberculosis.
Gardner Middlebrook, Denver, Bacteriology of Tuberculosis.
Maxwell M. Wintrobe, Salt Lake City, Anaemia of Infection.
William S. Conklin, Portland, Ore., Surgical Trends in Pulmonary Tuberculosis.
William H. Oatway Jr., La Vina, Calif., Subject to be announced.

Annual Clinicians Meeting in Chicago.—The annual session of the American Association of Medical Clinicians will be held at the Congress Hotel, Chicago, Oct. 9-11, under the presidency of Dr. Clair L. Stealy, San Diego, Calif. The sessions will open Saturday, 10 a. m., with a panel on "Prepaid Medical Care Plans: Status and Problem," for which Dr. Wayne Gordon, Billings, Mont., will serve as moderator. The presidential address and an address by Dr. Alton Ochsner, New Orleans, will be delivered at the luncheon, 12:30 p. m. A cocktail party, courtesy of Marshall Field Clinic, will follow the afternoon business session. Dr. Edwin P. Jordan, Charlottesville, Va., executive director of the association, will address the professional problems session, Sunday, 9:30 a. m., on "Professional Composition of Group Practices." Dr. R. Franklin Jukes, Akron, Ohio, will be moderator for a panel on "Problems in Internal Structure and Organization of Clinics" at 9:50 a. m., and Dr. Charles V. Edwards, Council Bluffs, Iowa, will moderate a panel discussion on "Physician's Role in Clinic Personnel Policies" at 11 a. m. Mr. Leo E. Brown, Director, A. M. A. Department of Public Relations, will be guest speaker at the luncheon, 12:30 p. m., and will discuss "PR Profits vs. Dollar Profits." At 2:20 p. m. "Should Clinics Require Staff Members to Sign Agreements Restricting Their Right to Practice in the Community" will be presented by Dr. Harold D. Caylor, Bluffton, Ind., and Mr. George E. Hall of the A. M. A. Bureau of Legal Medicine and Legislation.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

	Aug. 29, 1953		
Area	Paralytic Type	Total Cases Reported	Aug. 30, 1952 Total
New England States			
Maine	9	23	14
New Hampshire	..	7	8
Vermont	4	5	3
	17	38	59
	13	26	7
	2	25	32
Middle Atlantic States			
New York	60	216	192
New Jersey	30	55	54
Pennsylvania	..	85	89
East North Central States			
Ohio	34	180	208
Indiana	..	33	82
Illinois	66	171	276
Michigan	72	181	280
Wisconsin	..	68	183
West North Central States			
Minnesota	39	185	281
Iowa	14	61	286
Missouri	10	57	66
North Dakota	4	20	21
South Dakota	..	11	55
Nebraska	1	16	177
Kansas	..	38	110
South Atlantic States			
Delaware	..	3	9
Maryland	18	37	12
District of Columbia	1	2	13
Virginia	15	65	62
West Virginia	15	38	43
North Carolina	8	44	34
South Carolina	2	7	2
Georgia	10	22	26
Florida	5	16	8
East South Central States			
Kentucky	9	23	120
Tennessee	5	30	27
Alabama	6	12	7
Mississippi	..	18	15
West South Central States			
Arkansas	9	16	29
Louisiana	4	13	30
Oklahoma	12	31	63
Texas	16	63	163
Mountain States			
Montana	3	16	11
Idaho	..	2	36
Wyoming	..	..	4
Colorado	9	13	28
New Mexico	..	5	39
Arizona	7	21	10
Utah	..	20	16
Nevada	..	2	..
Pacific States			
Washington	..	20	90
Oregon	8	17	36
California	97	181	155
Territories and Possessions			
Alaska	1	1	..
Hawaii	..	..	4
Puerto Rico	1	1	1
Total	636	2,240	3,567

CANADA

Anesthesia Research Meeting.—The International Anesthesia Research Society will meet at the Chateau Frontenac, Quebec, Oct. 26-29. Dr. A. William Friend, Akron, Ohio, will serve as moderator Thursday morning for a panel discussion on "Further Evaluation of Elective Hypotension as an Adjunct to Surgery." Participants will include Drs. Charles R. Stephen, Ruth C. Martin, and William K. Nowill, Durham, N. C., who will present "Production of Controlled Hypotension During Surgery with Pendiomide," Dr. Max S. Sadove, Chicago, who will discuss "Arfonad and True Controlled Hypotension," and Drs. Nicholas M. Greene, Rochester, N. Y., C. Paul Boyan, New York, and David M. Little Jr., New Haven, Conn. Thursday afternoon Dr. Morris J. Nicholson, Boston, will be moderator for a panel on "Hospital Hazards and Their Control," with Drs. D. Dwight Grove, Philadelphia, and George J. Thomas, Pittsburgh, as collaborators.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Clinical Meeting, St. Louis, Dec. 1-4.
1954 Annual Meeting, San Francisco, June 21-25.
1954 Clinical Meeting, Miami, Florida, Nov. 30-Dec. 3.
1955 Annual Meeting, Atlantic City, N. J., June 6-10.
1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

NATIONAL CONFERENCE ON PHYSICIANS AND SCHOOLS, Moraine-on-the-Lake Hotel, Highland Park, Ill., Sept. 30-Oct. 2. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago 10, Director.

AMERICAN ACADEMY FOR CEREBRAL PALSY, Western Hills Hotel, Fort Worth, Texas, Oct. 30-31. Dr. Harry E. Barnett, 116 S. Michigan Blvd., Chicago 3, Secretary.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, Palmer House, Chicago, Oct. 12-16. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

AMERICAN ACADEMY OF PEDIATRICS, Municipal Auditorium, Miami, Fla., Oct. 6-9. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Secretary.

AMERICAN ASSOCIATION OF BLOOD BANKS, LaSalle Hotel, Chicago, Oct. 17-20. Miss Marjorie Saunders, 3500 Gaston Ave., Dallas 4, Texas, Secretary.

AMERICAN ASSOCIATION OF MEDICAL CLINICS, Congress Hotel, Chicago, Oct. 9-11. Dr. Edwin P. Jordan, P. O. Box 114, Charlottesville, Va., Executive Director.

AMERICAN ASSOCIATION OF MEDICAL RECORD LIBRARIANS, Palace Hotel, San Francisco, Oct. 5-9. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Secretary.

AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA, Drake Hotel, Chicago, Oct. 1-3. Dr. James K. Stack, 700 North Michigan Blvd., Chicago, Secretary.

AMERICAN CANCER SOCIETY, New York, Nov. 2-6. Dr. Charles S. Cameron, 47 Beaver St., New York 4, Medical Director.

AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION, The Homestead, Hot Springs, Va., Nov. 2-4. Dr. Marshall N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

AMERICAN COLLEGE OF SURGEONS, Conrad Hilton Hotel, Chicago, Oct. 5-9. Dr. Michael L. Mason, 40 East Erie St., Chicago, Secretary.

AMERICAN DENTAL ASSOCIATION, Cleveland, Sept. 28-Oct. 1. Dr. Harold Hillenbrand, 222 E. Superior St., Chicago 11, General Secretary.

AMERICAN FRACTURE ASSOCIATION, Mission Inn, Riverside, Calif., Oct. 12-15 Dr. H. W. Wellmerling, 120 S. LaSalle St., Chicago 3, Secretary.

AMERICAN MEDICAL WRITERS' ASSOCIATION, Elk's Club, Springfield, Ill., Sept. 23. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

AMERICAN ROENTGEN RAY SOCIETY, Netherland Plaza, Cincinnati, Sept. 29-Oct. 2. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

AMERICAN SOCIETY OF ANESTHESIOLOGISTS, Olympic Hotel, Seattle, Oct. 6-9. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago, Secretary.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, Drake Hotel, Chicago, Oct. 12-16. Dr. Clyde G. Culbertson, 1040 W. Michigan St., Indianapolis, Secretary.

AMERICAN SOCIETY FOR THE STUDY OF ARTERIOSCLEROSIS, Hotel Knickerbocker, Chicago, Nov. 1-2. Dr. O. J. Pollak, P. O. Box 228, Dover, Del., Secretary.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, Hotel Claridge, Atlantic City, N. J., Oct. 26-28. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

ASSOCIATION OF LIFE INSURANCE MEDICAL DIRECTORS OF AMERICA, Hotel Statler, New York, Oct. 14-16. Dr. Henry B. Kirkland, P. O. Box 594, Newark 1, N. J., Secretary.

ASSOCIATION OF MEDICAL ILLUSTRATORS, Sheraton Hotel, Baltimore, Oct. 5-7. Miss Evelyn J. Erickson, 1512 St. Antoine St., Detroit 26, Secretary.

ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICERS, Washington Hotel, Washington, D. C., Nov. 4-7. Dr. John D. Porterfield, 306 Ohio Depts. Bldg., Columbus 15, Ohio, Secretary.

CENTRAL ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS, The Shamrock, Houston, Texas, Nov. 5-7. Dr. Harold L. Gainey, Suite 602, 116 South Michigan Ave., Chicago 3, Secretary.

CENTRAL NEUROPSYCHIATRIC ASSOCIATION, Claypool Hotel, Indianapolis, Oct. 15-17. Dr. Hamilton Ford, 112 North Blvd., Galveston, Texas, Secretary.

COLLEGE OF AMERICAN PATHOLOGISTS, Drake Hotel, Chicago, Oct. 12-16. Dr. Harry P. Smith, 203 N. Wabash Ave., Chicago 1, Secretary.

COLORADO STATE MEDICAL SOCIETY, Shirley-Savoy Hotel, Denver, Sept. 29-Oct. 2. Mr. Harvey T. Stethman, 835 Republic Bldg., Denver 2, Executive Secretary.

CONSTANTINIAN SOCIETY, Battery Park Hotel, Asheville, N. C., Oct. 18-21. Dr. C. F. Shook, Medical Director, Owens-Illinois Glass Company, Toledo 1, Ohio, Secretary.

DELAWARE, MEDICAL SOCIETY OF, Hotel du Pont, Wilmington, Oct. 12-14. Dr. Andrew M. Gehret, 822 North American Bldg., Secretary.

DISTRICT OF COLUMBIA, MEDICAL SOCIETY OF THE, Hotel Statler, Washington, Oct. 5-7. Mr. Theodore Wiprud, 1718 M St. N.W., Washington 6, Secretary.

GULF COAST CLINICAL SOCIETY, Admiral Semmes Hotel, Mobile, Ala., Oct. 15-16. Dr. William J. Atkinson Jr., 1217 Government St., Mobile 20, Ala., Secretary.

GULF COAST CONFERENCE ON INDUSTRIAL HEALTH, Shamrock Hotel, Houston, Tex., Oct. 1-3. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Tex., Co-Chairman.

INDIANA STATE MEDICAL ASSOCIATION, French Lick, Oct. 19-21. Mr. James A. Waggener, 23 E. Ohio St., Indianapolis 4, Executive Secretary.

INTERSTATE POST GRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA, Palmer House, Chicago, Nov. 2-5. Dr. E. R. Schmidt, 1300 University Ave., Madison 5, Wisconsin, Secretary.

KANSAS CITY SOUTHWEST CLINICAL SOCIETY, Kansas City, Mo., Sept. 28-Oct. 1. Dr. W. H. Algie, 825 North 7th Street, Kansas City, Kans., Secretary.

KENTUCKY STATE MEDICAL ASSOCIATION, Brown Hotel, Louisville, Sept. 22-24. Dr. Bruce Underwood, 620 South Third St., Louisville 2, Secretary.

MICHIGAN STATE MEDICAL SOCIETY, Pantlind Hotel and Civic Auditorium, Grand Rapids, Sept. 23-25. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Secretary.

MIDWESTERN SECTION OF AMERICAN FEDERATION FOR CLINICAL RESEARCH, Congress Hotel, Chicago, Oct. 29. Dr. Robert J. Glaser, 600 S. Kingshighway Blvd., St. Louis 10, Secretary.

MISSISSIPPI VALLEY MEDICAL SOCIETY, Springfield, Ill., Sept. 23-25. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

MONTANA MEDICAL ASSOCIATION, Northern Hotel, Billings, Sept. 17-20. Mr. L. R. Hegland, 104 North Broadway, Billings, Executive Secretary.

NATIONAL GASTROENTEROLOGICAL ASSOCIATION, Hotel Biltmore, Los Angeles, Oct. 12-17. Dr. A. Xerxes Rossien, 1819 Broadway, New York 23, Secretary.

NATIONAL PROCTOLOGIC ASSOCIATION, Congress Hotel, Chicago, Oct. 15-17. Dr. George E. Mueller, 59 East Madison St., Chicago 2, Secretary.

NEUROSURGICAL SOCIETY OF AMERICA, The Broadmoor, Colorado Springs, Colo., Sept. 23-27. Dr. C. D. Hawkes, 22 North Manassas St., Memphis 5, Tenn., Secretary.

NEVADA STATE MEDICAL ASSOCIATION, Carter Hotel, Elko, Sept. 24-26. Dr. William A. O'Brien III, 505 Chestnut St., Reno, Secretary.

NEW ENGLAND OBSTETRICAL AND GYNECOLOGICAL SOCIETY, Hotel Somerset, Boston, Oct. 28. Dr. Carmi R. Alden, 270 Commonwealth Ave., Boston, Secretary.

NEW HAMPSHIRE MEDICAL SOCIETY, Equinox House, Manchester, Vt., Oct. 4-6. Dr. Deering G. Smith, 44 Chester St., Nashua, Secretary.

NORTH PACIFIC SOCIETY OF INTERNAL MEDICINE, Harrison, B. C., Canada, Sept. 18-19. Dr. Clarence C. Pearson, 1115 Terry Ave., Seattle 1, Wash., Secretary.

NORTH TEXAS-SOUTHERN OKLAHOMA FALL CLINICAL CONFERENCE, Wichita Falls, Texas, Sept. 16. Dr. C. H. Wilson, 1300 Eighth St., Wichita Falls, Texas, Secretary.

OKLAHOMA CITY CLINICAL SOCIETY, Oklahoma City, Oct. 26-29. Miss Alma F. O'Donnell, 512 Medical Arts Bldg., Oklahoma City 2, Executive Secretary

OMAHA MID-WEST CLINICAL SOCIETY, Hotel Paxton, Omaha, Oct. 26-30. Miss Irene Rau, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

OREGON STATE MEDICAL SOCIETY, Heathman Hotel, Portland, Oct. 14-17. Dr. Charles E. Littlehales, 833 S.W. Eleventh Ave., Portland 5, Secretary.

PENNSYLVANIA, MEDICAL SOCIETY OF THE STATE OF, William Penn Hotel, Pittsburgh, Sept. 21-24. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:

  ARKANSAS-OKLAHOMA, Tulsa, Okla., Sept. 19. Dr. Wann Langston, 117 North Broadway, Oklahoma City 2, Governor.

  WESTERN NEW YORK, Syracuse, Oct. 9. Dr. E. C. Reifenstein, 109 South Warren St., Syracuse 2, Governor.

  OHIO, Dayton, Oct. 9. Dr. Charles A. Doan, Ohio State University College of Medicine, Columbus 10, Governor.

  MONTANA-WYOMING, Missoula, Mont., Oct. 9-10. Dr. Harold W. Gregg, 127 West Park Street, Butte, Mont., Governor.

  NEW ENGLAND—CONN., MAINE, MASS., N. H., R. I., VT.—Hartford, Conn., Oct. 28. Dr. John C. Leonard, 80 Seymour St., Hartford 15, Conn., Chairman.

  NEW JERSEY, Trenton, Nov. 4. Dr. Edward C. Klein Jr., 73 Lincoln Park, Newark 2, Governor.

  SOUTHEASTERN—Cuba, Alabama, Florida, Georgia, South Carolina—St. Simons, Sea Island, Ga., Oct. 16-17. Dr. Carter Smith, 384 Peachtree St. N.E., Atlanta 3, Ga., Chairman.

SOUTH CENTRAL BRANCH, AMERICAN UROLOGICAL ASSOCIATION, Kansas City, Mo., Sept. 20-23. Dr. Rex E. Van Duzen, 721 Medical Arts Bldg., Dallas, Texas, Chairman.

SOUTHERN MEDICAL ASSOCIATION, Municipal Auditorium, Atlanta, Ga., Oct. 26-29. Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham 3, Ala., Secretary.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION, St. John's Catholic School, Mankato, Sept. 14. Dr. C. F. Stroebel, 102 Second Ave. S. W., Rochester, Secretary.

SOUTHWESTERN MEDICAL ASSOCIATION, El Conquistador Hotel, Tucson, Ariz., Oct. 29-31. Dr. C. C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

Southwestern Surgical Congress, Hotel Utah, Salt Lake City, Sept. 21-23. Dr. C. R. Rountree, 1227 Classen St., Oklahoma City 3, Secretary.

Tennessee Valley Medical Assembly, Read House Hotel, Chattanooga, Sept. 28-29. Dr. William G. Stephenson, 612 Medical Arts Bldg., Chattanooga 3, President.

U. S. Chapter, International College of Surgeons, Waldorf-Astoria, New York, Sept. 13-17. Dr. Karl Meyer, 1516 Lake Shore Drive, Chicago 10, Secretary.

Vermont State Medical Society, Equinox House, Manchester, Oct. 4-6. Dr. James P. Hammond, 542 Main St., Bennington, Secretary.

Virginia, Medical Society of, Hotel Roanoke, Roanoke, Oct. 18-21. Mr. Robert I. Howard, 1105 W. Franklin St., Richmond 20, Executive Secretary.

Washington State Medical Association, Olympic Hotel, Seattle, Sept. 13-16. Dr. Bruce Zimmerman, 338 White-Henry-Stuart Bldg., Seattle 1, Secretary.

Western Orthopedic Association, Sun Valley, Idaho, Oct. 5-8. Dr. Forrest L. Flashman, 1301 Spring St., Seattle 4, Secretary.

Wisconsin, State Medical Society of, Hotel Schroeder, Milwaukee, Oct. 5-8. Mr. Charles H. Crownhart, 704 East Gorham St., Madison 3, Secretary.

FOREIGN

Association of Surgeons of Great Britain and Ireland, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

Canadian Medical Association, Vancouver, B. C., Canada, June 18-22, 1954. Dr. T. C. Routley, 135 St. Clair Ave. W., Toronto 5, Ont., Canada, General Secretary.

Congress of International Anesthesia Research Society, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

Congress of the International Society of Angiology, Lisbon, Portugal, Sept. 18-20. Dr. Henry Haimovici, 105 East 90th St., New York 28, N. Y., U. S. A., Secretary.

Congress of the International Society of Surgery, Lisbon, Portugal, Sept. 14-20. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

Interim Meeting, Aero Medical Association, University of Brussels Medical School, Brussels, Belgium, Sept. 24-27. Dr. Andre Allard, Medical Director of SABENA, 145 Rue Royale, Brussels, Belgium, Secretary.

International Cancer Congress, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

International Conference on Thrombosis and Embolism, Basle, Switzerland, July 15-19, 1954 Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

International Congress on Group Psychotherapy, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

International Congress of Hydroclimatism and Thalassotherapy, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni Venac 1, Belgrade, Yugoslavia, Secretary General.

International Congress of International College of Surgeons, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U.S.A., Secretary-General.

International Congress on Mental Health, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

International Congress on Obstetrics and Gynecology, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

International Congress of Paediatrics, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba President.

International Congress of Psychology, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

International Congress for Psychotherapy, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

International Gerontological Congress, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

International Leprosy Congress, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

International Office of Documentation of Military Medicine, Rome, Italy, Oct. 14-18. Colonel Medecin Prof. A. Campana, Office of the Ministero della Difesa-Esercito, Rome, Italy, Secretary.

International Society for the Study of Biological Rhythms, Basle, Switzerland, Sept. 18-19. For information write: Prof. Dr. F. Georgi, Neurologische Universitats-Poliklinik, Socinstrasse 55, Basle, Switzerland.

Journees Medicales, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geofroix, Colombes (Seine) France.

Latin American Congress of Obstetrics and Gynecology, Buenos Aires, Argentina, Oct. 26-31.

Latin American Congress of Otorhinolaryngology, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro Medico, Caracas, Venezuela, Secretary-General.

Pacific Science Congress, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, Mexico, D.F., Mexico, Feb. 28-March 4, 1954.

Pan American Medical Association, International Medical Cruise Congress, S. S. Nieuw Amsterdam, Jan. 6-22, 1954. Dr. Joseph J. Eller, 745 Fifth Avenue, New York 22, N. Y., U. S. A., Executive Director.

Pan American Medical Women's Alliance, Beekman Towers Hotel, New York, N. Y., Sept. 24-Oct. 1. Dr. Ina Marsh, 140 Linwood Ave., Buffalo, N. Y., U. S. A., Registration Chairman.

Persian Gulf Medical Society, Dhahran, Saudi Arabia, Dec. 7-8. Dr. N. J. Conan Jr., Department of Internal Medicine, Arabian American Oil Company, Dhahran, Saudi Arabia, Secretary.

Regional Meeting, American College of Physicians, San Juan, Puerto Rico, Oct. 15-17. Dr. R. Rodriquez-Molina, Veterans Administration Center, San Juan, Puerto Rico, Governor.

Sectional Meeting, American College of Surgeons, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* All centers where there are five or more candidates. Sept. 8-10 (Part I only). Candidates may file applications at any time, but the National Board must receive them at least six weeks before the date of the examination they wish to take. Exec. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Written.* Various Centers, July 16, 1954. Sec., Dr. Curtiss B. Hickox, 80 Seymour St., Hartford 15.

American Board of Dermatology and Syphilology: All candidates must now pass a written examination. *Oral.* Philadelphia, Oct. 16-18. To be eligible, candidate must complete 36 months of training before Oct. 1. Final date for filing applications was May 1. Exec. Sec., Miss Janet Newkirk, 66 East 66th St., New York 21.

American Board of Internal Medicine: *Oral.* San Francisco, Sept. 30-Oct. 2, Chicago, Nov. 30-Dec. 2. The closing date for acceptance of applications for the San Francisco and Chicago oral examination was April 1. *Written.* October 19. The closing date for acceptance of applications was May 1. Exec. Sec.-Treas., Dr. William A. Werrell, 1 West Main St., Madison 3.

American Board of Neurological Surgery: *Oral.* New Haven, October. Final date for filing application was July 1, Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, Kingshighway and Euclid Ave., St. Louis.

American Board of Neurology and Psychiatry: *Psychiatry and Neurology.* Dec. 14-15. Applications no longer being accepted Chicago, April 29-30. Final date for filing application is Feb. 1. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Obstetrics and Gynecology: *Written.* Various cities of the United States and Canada, Feb. 5. Application for examination or re-examination, as well as requests for resubmission of case reports, must be made prior to October 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: Chicago, Oct. 5-9. *Written.* Various Centers, January 1954. Final date for filing applications was July 1. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

American Board of Orthopaedic Surgery: *Part II.* Chicago, Jan. 20-22. Final date for filing application was August 15. Final date for filing application for Part I is Nov. 30. Sec., Dr. Harold A. Sofield, 122 S. Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 5-9. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

American Board of Pathology: *Written. Pathologic Anatomy and Clinical Pathology.* Chicago, Oct. 8-10. Sec., Dr. William B. Wartman, 303 E. Chicago Ave., Chicago.

American Board of Pediatrics: *Oral.* Miami, Oct. 9-11; Indianapolis, Dec. 4-6. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Plastic Surgery: *Entire Examination.* San Diego, Oct. 29-31. Final date for receipt of case reports was June 1. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Proctology: *Part II. Oral and Written. Anorectal Surgery and Proctology.* Philadelphia, Sept. 19. Sec., Dr. Louis A. Buie, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: *Oral. Radiology, Roentgenology, Diagnostic Roentgenology and Therapeutic Radiology.* Chicago, Dec. 6-11. Final date for filing application was July 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Surgery: *Part I.* Oct. 28, 1953. March 31, 1954 and Oct. 27, 1954. *Part II.* New York City, Oct. 12-13; Chicago, Nov. 9-10; St. Louis, Dec. 14-15; Los Angeles, Jan. 11-12, 1954; Galveston, Jan. 15-16; Washington, Feb. 8-9; Cincinnati, March 8-9; New Orleans, April 12-13; Philadelphia, May 10-11; Boston, June 14-15. Sec., Dr. John B. Flick, 225 S. 15th St., Philadelphia 2.

Board of Thoracic Surgery: *Written.* Various centers throughout the country, September 11. Final date for filing application was July 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

DEATHS

Metz, Waldemar Rice ⊕ New Orleans; born in New Orleans in 1891; Tulane University of Louisiana School of Medicine, New Orleans, 1913; clinical associate professor of surgery, Louisiana State University School of Medicine; specialist certified by the American Board of Plastic Surgery; member of the Southeastern Surgical Congress and the American Society of Plastic and Reconstructive Surgery; fellow of the American College of Surgeons; past president and vice-president of the Orleans Parish Medical Society; one of the founders, member of the board, and past president of the New Orleans Graduate Medical Assembly; served during World War I; plastic surgeon for the crippled children's division, state board of health; formerly associated with the U. S. Public Health Service; consultant plastic surgeon, U. S. Public Health Service Hospital, Carville, La.; attending plastic surgeon, U. S. Public Health Service Hospital; member of the staffs of Southern Baptist Hospital, Mercy Hospital-Soniat Memorial, Sara Mayo Hospital, Charity Hospital of Louisiana, and Touro Infirmary, where he died July 10, aged 62, of cerebral embolism with massive infarction of left cerebral hemisphere.

Walker, Alfred Augustus ⊕ Birmingham, Ala.; born in 1881; Cornell University Medical College, New York, 1905; emeritus professor of pediatrics at Medical College of Alabama; member of the House of Delegates of the American Medical Association from 1924 to 1926, in 1930, from 1934 to 1945, and in 1948, a member of its Council on Scientific Assembly from 1935 to 1945, serving as chairman of the council from 1942 to 1945, and secretary of the Section on Diseases of Children from 1930 to 1933 and chairman, 1933-1934; for many years chairman of the Jefferson County Board of Health; a director of the American Board of Pediatrics from 1934 to 1944; member of the American Academy of Pediatrics; served during World War I; affiliated with Children's Hospital, St. Vincent's Hospital, and Jefferson-Hillman Hospital; consultant in pediatrics at South Highlands Infirmary; died in St. Vincent's Hospital July 7, aged 72, of congestive heart failure, myocardial infarction, and arteriosclerosis.

Griffith, William Allen, Berwyn, Md.; College of Physicians and Surgeons, Baltimore, 1909; at one time physician at the University of Maryland in College Park; served during World War I; past president of the Prince Georges County Medical Society, Southern Maryland Medical Society, and the state board of medical examiners; formerly director of Prince Georges Bank and Trust Company; for 34 years local physician for the Baltimore and Ohio Railroad; on the staff of Leland Memorial Hospital in Riverdale, where he died June 16, aged 72, of cerebral hemorrhage.

Ball, Otho Fisher ⊕ Chicago; St. Louis College of Physicians and Surgeons, 1897; member of the American College of Hospital Administrators; president of the Modern Hospital Publishing Company, publishers of *Modern Hospital;* died July 19, aged 78, of coronary occlusion.

Best, Alonzo Lee, Newport, Ark.; Memphis (Tenn.) Hospital Medical College, 1901; died July 11, aged 78.

Bollmeier, Ludolf Nicholas ⊕ Hot Springs National Park, Ark.; St. Louis College of Physicians and Surgeons, 1921; Kansas City (Mo.) College of Medicine and Surgery, 1922; member of the American Psychoanalytic Association, American Psychosomatic Society, American Psychiatric Association, and the Association for Research in Nervous and Mental Diseases; consultant at Veterans Administration Hospital in North Little Rock; died in St. Joseph's Infirmary July 6, aged 54, of acute coronary occlusion.

Brown, Frederick Willard, Dwight, Ill.; Chicago College of Medicine and Surgery, 1911; died in Veterans Administration Hospital July 12, aged 71.

Crowe, John William ⊕ Washington, D. C.; Georgetown University School of Medicine, Washington, 1897; died in Montgomery County, Md., July 18, aged 85, of generalized arteriosclerosis.

Downing, Perley Edwin, Trenton, N. J.; New York Homeopathic Medical College and Flower Hospital, New York, 1914; senior resident physician, New Jersey State Hospital; died in Tremont, Pa., July 12, aged 67, of cerebral thrombosis.

Foster, Herbert West ⊕ Montclair, N. J.; New York Homeopathic Medical College and Hospital, New York, 1891; an Associate Fellow of the American Medical Association; founder and first president of the Associated Physicians of Montclair and Vicinity; served on the staffs of the Mountainside and Montclair Community hospitals; died July 13, aged 83, of pneumonia and emphysema.

Heil, Ulysses S. Grant, Easton, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1889; died in Betts Hospital July 17, aged 85.

Lewis, Margaret C., Honey Brook, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1895; died in West Chester, July 13, aged 84, of cerebral hemorrhage.

McCastline, William Henry ⊕ Brandon, Vt.; Columbia University College of Physicians and Surgeons, New York, 1903; member of the Medical Society of the State of New York; for many years medical officer at Columbia University; died July 11, aged 77, of coronary thrombosis.

Milligan, Leo Patrick, Huntsville, Ala.; Georgetown University School of Medicine, Washington, D. C., 1911; died July 8, aged 69, of cerebral hemorrhage.

Murphy, Eugene Clement ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1913; fellow of the American College of Surgeons; served in France during World War I; formerly affiliated with the U. S Public Health Service; on the staff of the Doctors Hospital, of which he was one of the founders, and St. Agnes Hospital; died July 9, aged 62, of pulmonary tuberculosis.

Palay, Lewis, Miami Beach, Fla.; University of Louisville (Ky.) School of Medicine, 1928; certified by the National Board of Medical Examiners; specialist certified by the American Board of Otolaryngology; member of the American College of Allergists; affiliated with Mount Sinai Hospital, where he died July 17, aged 51, of coronary thrombosis and myocardial infarction.

Pascall, Thomas Myrick ⊕ Newark, N. J.; Baltimore Medical College, 1906; member of the Industrial Medical Association; died in Hospital of St. Barnabas and for Women and Children July 17, aged 72, of cerebral thrombosis.

Peeler, Crawford Monroe ⊕ Pangburn, Ark.; University of Nashville Medical Department, 1909, past president of the White County Medical Society; served as mayor of Pangburn; died in Searcy July 7, aged 72, of coronary occlusion.

Plumlee, Claude Hamilton, Celina, Tenn.; University of Tennessee College of Medicine, Memphis, 1952; interned at John Gaston Hospital at Memphis; died July 5, aged 30, of injuries received in an automobile accident.

Purvey, John Compton ⊕ Crystal Lake, Ill.; University of Illinois College of Medicine, Chicago, 1939; served during World War II; affiliated with St. Joseph and Sherman hospitals in Elgin, and the Memorial Hospital in Woodstock; died in Augustana Hospital, Chicago, July 14, aged 39, of subdural hemorrhage.

Roberts, David William, Okemos, Mich.; Cleveland University of Medicine and Surgery, 1897; affiliated with Edward W. Sparrow Hospital in Lansing; for many years medical director of the Ingham County Hospital; died July 29, aged 87, of cerebral hemorrhage.

⊕ Indicates Member of the American Medical Association.

GOVERNMENT SERVICES

ARMY

Regular Army Physicians May Now Resign.—Regular officers of the Army Medical Service may resign and leave the service under a new and more liberal Department of the Army policy, according to Major Gen. Siles B. Hays, Acting Surgeon General. Beginning with officers having the longest periods of service, a number will be allowed to resign each month, on recommendation of the Surgeon General, provided they have met certain service requirements. Previously, resignations were accepted only in cases of extreme hardship. According to the new policy, regular officers who have no obligatory commitments to the Army and who have served in the Regular Army for a period of three years are eligible for release. If, however, they have served for less than eight years, they must accept commissions in the Reserve.

"Even though we expect to lose some officers in the next few months," General Hays said, "we believe the new policy will encourage physicians to enter the Regular Army because they will no longer be required to commit themselves to an indefinite term of service. Actually, I believe that our increasing percentage of officers will find the military service so stimulating professionally and so pleasant that they will make it their career."

NAVY

Medical and Dental Symposium.—The third medical and dental military symposium under the auspices of the First Naval District will be held at the Naval Hospital, Chelsea, Mass., October 12-14. Civilian physicians, dentists, and members of allied sciences, in addition to those of the armed forces, are invited to attend. The subjects will be presented by speakers of outstanding prominence in their specialties.

The Chief of Naval Personnel has approved the symposium for retirement point credit for Reservists not on the Inactive Status List. One retirement point credit will be awarded for each of the three sessions attended providing the duration of the meeting is at least two hours. Requests for duty orders should be submitted to the Commandant of the First Naval District.

PUBLIC HEALTH SERVICE

Conference of Foreign Health Workers.—About 85 foreign health workers who have received postgraduate training in the United States through the assistance of the Division of International Health, Public Health Service, met in Washington August 17-21 for an evaluation seminar. During the week-long conference, the group had an opportunity to discuss their experiences in the nine months of academic training and three months of field training just completed. The trainees, who have been studying public health, nursing education, public health nursing, sanitary engineering, and various clinical fields, represent 20 different countries: Thailand, Burma, India, Brazil, Colombia, Costa Rica, Finland, Germany, Greece, Honduras, Indonesia, Iraq, Lebanon, Mexico, Panama, Philippine Islands, Taiwan, Uruguay, and Vietnam. The students carried out their work in the United States under the sponsorship primarily of the Technical Cooperation Administration, the Mutual Security Agency, and the Office of the High Commissioner of Germany. They were placed by the Division of International Health in 28 universities, hospitals, and laboratories throughout the country.

Applications for Hospital Construction.—By the end of June 30, 1953, a total of 2,104 applications for hospital construction had been approved under the terms of the Hill-Burton Act, according to the Division of Hospital Facilities, Public Health Service. More than 1,200 of the projects are open and in operation, 727 are under construction, and the remaining are in preconstruction stages. These projects will add 102,362 hospital beds and 413 health centers to the nation's health facilities at a cost of more than one and two-thirds billion dollars. The federal government is contributing over 500 million dollars and the sponsors more than one billion dollars. The majority of all approved applications (71%) are for general hospital projects; 4% are for mental hospitals, 3% for tuberculosis hospitals, and 2% for chronic disease facilities. Of the total projects, 1,242, or 59%, are completely new facilities; additions or alterations to existing facilities comprise the remaining 41%.

Water Pollution Control.—The nation's municipalities invested about 31 million dollars in water pollution control projects during the first quarter of 1953, the Public Health Service has announced. Contracts were awarded for 119 sewage treatment projects designed to keep harmful wastes out of rivers, lakes, and other waterways. Of these, 61 were for construction of new sewage treatment plants, 48 for enlargement or improvement of existing plants, and 10 for construction of interceptor sewers. Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, said the 31 million dollar investment represents a slight increase over last year's expenditures for the comparable period but is far below the amount needed to conserve the nation's clean water resources. Many more cities and towns need to follow the example of these 119 municipalities in solving their own local problems, if the total national problem is to be solved.

Personal.—Dr. Stanley E. Krumbiegel has been appointed medical officer in charge of the U. S. Public Health Service Outpatient Clinic at Washington, D. C., to succeed Dr. Clifton K. Himmelsbach, recently assigned as assistant chief, division of hospitals, Public Health Service. In his new position, Dr. Krumbiegel, who since 1948 has been medical director of the Bureau of Prisons, Department of Justice, will be responsible for the administration of the medical care program for beneficiaries of the Public Health Service in the Washington area. Dr. Harold M. Janney, who since 1950 has been medical director of the U. S. Penitentiary, Atlanta, Ga., has been appointed medical director of the Bureau of Prisons. The Public Health Service administers the medical care, health, and hospital activities in federal penal and correctional institutions.

VETERANS ADMINISTRATION

New Hospital Managers.—The Veterans Administration has announced the appointment of managers for the VA neuropsychiatric hospitals at Danville, Ill., and Roseburg, Ore. Dr. Oreon K. Timm, chief of professional services at the 1,700-bed Danville hospital, will become manager of that institution, succeeding Dr. L. E. Trent who is retiring Sept. 30, 1953. Dr. George L. Wadsworth, chief of professional services at the VA Hospital in Tomah, Wis., will become manager of the 577-bed hospital at Roseburg, succeeding Dr. John L. Haskins, who has been transferred to the VA center at Los Angeles. Dr. Glen W. Doolen, chief of plans and development in the tuberculosis division of the department of medicine and surgery, Washington, D. C., has been appointed manager of the VA Hospital at Richmond, Va. He will succeed Dr. John G. Hood, who has been transferred to the VA Hospital, Bronx, N. Y., where he will be manager.

FOREIGN LETTERS

ARGENTINA

Chagas' Disease.—The American human trypanosomiasis caused by Trypanosoma cruzi was discovered by Carlos Chagas in Brazil. For some time, the importance of the disease was minimized, but Salvador Mazza, in Argentina, demonstrated that the disease is endemic over wide areas. The importance of the chronic myocardial diseases was recognized by Mazza (province of Jujuy) and by Cecilio Romaña (province of Tucumán). The diagnosis of acute cases was facilitated by the recognition of an unilateral palpebral edema (Romaña sign). The diagnosis is established by three methods: (1) direct examination of a thick drop of blood; (2) by xenodiagnosis, with blood secured in the suspected case by triatomas bred in the laboratory free of crithidias; and (3) by the Machado-Guerrero seroreaction.

The disease is transmitted by the bite of Triatoma infestans, which is usually found in rural houses. The Triatomas are found from Patagonia (Argentina) to the southern United States. Triatoma infestans, the principal vector in Argentina, is infected by Trypanosoma cruzi in large but variable proportions. The proportion of children infected is from 6 to 40%, and it is believed that 15 to 20% of the rural population have been infected by the Trypanosoma organisms. If this is so, 500,000 or more of the 3,500,000 inhabitants who have been in contact with triatomas have been infected with a Trypanosoma.

The Ministry of Public Health held a conference on trypanosomiasis in the last week of June. A special department of the Ministry of Health, under the direction of Dr. Cecilio Romaña, is in charge of prevention of this disease. The fight against the Triatoma insects is based on (1) making houses insect-proof and (2) use of insecticides, DDT, and fumigation with smoke containing DDT. Results of the preliminary trials of these methods have been very gratifying.

Mortality of Young Rats at Mountain Heights.—In the Institute of High Altitude Biology organized by the University of Tucumán in Mina Aguilar (province of Jujuy) at 3,990 m. (12,000 ft.), Dr. Hugo Chiodi (director of the Institute) observed interesting facts on the mortality of young rats in the first days of life. According to Monge (in Peru), in the first Spanish settlement in Potosí, men and animals living in the high mountain could not have descendants. Chiodi observed that only 7 young rats out of 46 newly born at mountain heights could survive more than 30 days and they died at 38, 42, 45, and 100 days of age.

The mortality of 436 newly born rats was 35% in the first three days. The causes of death were liver damage and fatty degeneration. The animals survived when they were maintained at the same altitude with the same food for 30 days and when the oxygen pressure was similar to that of sea level.

When the animals reached 30 to 40 days of age, they survived well under the same conditions. The danger was only for rats younger than one month. Older rats showed no hepatic lesions and survived without apparent disturbances.

Second Argentina Congress of Gastroenterology.—The Second Congress of Gastroenterology was held in Mar del Plata, April 14-18. Abnormalities of the stomach found at operation were the subject of the reports and discussions. The subject was considered from the standpoint of hematological variations, physiopathology, radiology, gastroscopy, gastric ulcers, gastrointestinal pathology, biliary pathology, endocrine effects, and dietetic treatment. The president of the congress was Dr. Marcelo Royer. Guests of honor were the German professor Dr. Henning and some Brazilian physicians. Representatives of the Argentine gastroenterological centers attended the meetings, which were very successful.

AUSTRALIA

Typhoid Epidemic Traced to Unusual Cause.—In Victoria, New South Wales and Australian Capital Territory, an epidemic of typhoid developed last June, and the total number of cases to date is 56, of which 28 occurred in New South Wales and 24 in Victoria. An investigation of all the usual sources failed to elucidate the cause. The scattered incidence seemed contrary to usual experience. At Moorabbin, a suburb 11 miles (17.7 km.) from Melbourne, the senior health inspector, Mr. N. T. Davies, was persistent in questioning families infected. He was seeking a common food item that was eaten raw but that would store well and that could be distributed over a wide area.

The first clue came from two infected families who admitted a fondness for "Snowballs." These are confections made from artificial marshmallow (gelatin) and rolled in desiccated coconut. In a third family, Mr. Davies found some homemade cookies rolled in desiccated coconut. Packets of desiccated coconut were taken from each of the three homes, and each packet gave a positive culture. Samples of the same brand of desiccated coconut were collected from grocery stores and were found to be contaminated. Serologic and biochemical comparisons of these cultures with those isolated from the patients with typhoid corresponded. The brand of desiccated coconut involved is called "Tropic Snow" and is imported by Harrisons Ramsay Pty. Ltd. from Papua, New Guinea. Other brands from Ceylon and Papua have been found to be free from contamination.

Householders in Victoria have been advised by the State Health Minister to burn their supplies of desiccated coconut. The importing firm voluntarily recalled all unsold stocks in wholesale and retail trade channels. In other states, householders have been asked to treat all desiccated coconut as suspect and to boil it before use. All brands of dried coconut are being sampled throughout Australia. So far, no other brands have been found to be infected.

The health department in Papua has been asked to investigate the possible source of infection at the points of manufacture and transport of the desiccated coconut. Wholesale and retail suppliers of this product in Queensland have been ordered to sterilize their stocks of desiccated coconut. Retailers in Victoria have voluntarily destroyed their stocks of the "Tropic Snow" brand. A search of the literature on Typhoid has failed to reveal any evidence of previous epidemics due to desiccated coconut.

BRAZIL

Panamerican Congress of Surgery.—All surgeons of North and South America are being invited to attend the First Panamerican Congress of Surgery, which will be held in Curitiba, state of Parana, Brazil, on Oct. 5-9, 1953. This congress and the second congress of the Brazilian section of the International College of Surgeons will meet jointly under the sponsorship of the government of Parana, as a commemorative event of the first centennial of that state. The official themes are: "Death During Anesthesia," Prof. Max Thorek, Chicago; "Indications and Contraindications of Thoracotomies," Prof. Jorge Taiana, Buenos Aires; and "Surgery of the Biliary Ducts," Dr. Francisco Augusto Pinto, Rio de Janeiro. Other papers of general interest will be presented by speakers from North and South American countries.

Intestinal Obstruction.—In a paper read before the Medical Society of São Paulo, Dr. Luiz Oriente described his research on acute experimental intestinal obstruction and antibiotics, which he performed in the hospital "Julio Pignatari," department of experimental surgery. He employed 11 dogs, separating them in three groups. In the first group, he used

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The items in these letters are contributed by regular correspondents in the various foreign countries.

penicillin, in the second streptomycin, and in the third a combination of streptomycin plus 30% sodium sulfacetimide. The operations, as well as the reoperations, were performed under aseptic conditions, with intravenous anesthesia. Dr. Oriente compared survival after obstruction had taken place with the results obtained after reoperation, accomplished some hours (10 and 24) after the establishment of occlusion with strangulation. Antibiotics were used only after the operation and were given only by a parenteral route. His conclusions are as follows. The combination of streptomycin plus sodium sulfacetimide gave the best results concerning survival following obstruction and reoperation (resection and anastomosis). These results were confirmed by the clinical course and by examinations of anatomy and pathology. The medicaments greatly increased the safety in acute obstruction, delayed complications, and reduced the mortality rate. They represent potent auxiliary measures in the treatment of acute intestinal obstruction, especially when associated with surgical treatment, but they never should be used to replace or delay surgery.

NORWAY

Indications for Operative Treatment of Uncomplicated Peptic Ulcer.—At a meeting in Oslo last March of the Norwegian Surgical Society the opening address was given by Dr. Olaf Rømcke, who is in charge of the Drammen City Hospital. In collaboration with his colleagues he studied the records of 382 patients who had gastric or duodenal ulcers and who were given routine medical treatment in the Drammen Hospital from the beginning of 1935 to the end of 1937. Three years later 44% of the patients with gastric ulcers and 34% of those with duodenal ulcers were symptom free. After eight years the 44% was reduced to 22% and the 34% to 11%. Patients with a history of symptoms lasting more than five years had a much worse chance of ultimate recovery than patients with a shorter history. For this reason and various others, Rømcke advises operative treatment when symptoms have lasted for more than five years, when a relapse follows medical treatment in hospital, or when the patient cannot remain symptom free with slight dietetic restrictions.

One of the tables in the report showed the percentage of hospital patients selected for operative treatment year by year from 1935 to 1950. In the first year this percentage was only 19, whereas in the year 1949-1950 it was 35. This remarkable trend is largely a sequel to the fall in recent years of the operative mortality and the success with which postoperative hypochylia or achylia is achieved. Quoting the axiom "no acid, no ulcer" Dr. Rømcke would like to see the treatment of peptic ulcer by medical means put on a successful footing by the discovery of a remedy capable of inducing achylia without any troublesome or alarming side-affects.

TURKEY

Syphilis in Afghanistan.—In volume 11, number 2, of *Bursa Klinik*, Prof. Halil Gürün, who spent four years in the department of dermatology and venereal diseases at the medical school in Kabul, Afghanistan, reports on syphilis. In the course of time, foreign armies have traversed and occupied the country so the disease has been there a long time and has become endemic. The people have given the disease different names in different parts of the country. In the north, they call it "Gül-Efshan" probably because of the roseols in the second stage; in the central and southern regions it is named "Satan's disease" because of the terrible effects of the third stage; and in the east near Pakistan, the people say "Iblis," probably a corruption of the word syphilis used by the British physicians in India. In 1951, Professor Gürün made an investigation of the various public schools and found that of 1,713 students from 64 regions 115 (6.65%) had positive serologic reactions. The Kahn, Kolmar, Klein, and venereal disease routine laboratory tests were made at the United Nations International Children's Emergency Fund laboratory in Kabul. These students had all passed the physical examination on admission to the schools. Of 22,419 patients examined at the outpatient clinic in 1951, 2,041 (9.1%) had syphilis, and, of 13,509 patients examined during the first six months of 1952, 1,486 (11%) had syphilis. The World Health Organization team that investigated schools, poorhomes, and prisons arrived at the same percentages.

The majority of 378 patients admitted to Professor Gürün's clinic were in the first and second stages of the disease; 78 patients had primary syphilis; all had spirochete positive reactions; and 72 had positive serologic reactions. Forty-nine patients in the second stage had positive serologic reactions, and, of these, 17 had positive dark field reactions. Of 26 patients with congenital syphilis, 16 had positive serologic reactions. In other departments of the medical school hospital, syphilis is primarily responsible for parenchymatous keratitis, iritis, iridocyclitis, atrophy of the optic nerve, retrobulbar gumma, myelitis, meningitis, leptomeningitis, general paralysis, tabes, and neuritis. The medical department statistics indicate an abundance of visceral syphilis.

The statistics compiled by Dr. Münevver Özdolay, a Turkish physician with many years' experience in Afghanistan, indicate that 12% of the patients she examined had syphilis. The majority of patients in the department of dermatology and venereal diseases of the Mesturat Woman's Hospital show symptoms of syphilis innocentum. Outside of Kabul in the provinces, syphilis resembles an epidemic; patients with third stage lesions predominate. Of 281 patients admitted to the clinic in Aliabad, 127 (45%) had lesions involving destruction of the nose, esophagus, palate, or gums. Destruction of the digestive and respiratory systems often necessitated tracheotomy. In August, 1951, during an investigation of leprosy in Hezaracat, a mountainous, sparsely populated region with scarcely any outside contact, there appeared to be an even higher percentage of syphilitic persons than in Kabul. Investigation in the villages was not possible, but questioning revealed that the disease is widespread and no relief is available. Ignorance, poverty, and lack of medical care and personnel have made the scourge rampant. Outside assistance is urgently needed. There are few pharmacies, and quacks do good business selling pills that contain large amounts of arsenic and mercury and that result in toxemia. Home remedies are also widely used. There is very little foreign currency for the import of foreign pharmaceutical products. Their import is only permitted two agencies, the Ministry of Health and the medical school. The products are stored at the health department, and their release requires many formalities and the signature of the Minister of Health. Some of the products find their way into the black market with the result that lack of a quantity sufficient for effective treatment leads to premature termination of therapy.

Professor Gürün concludes that, if, as he recommended in a letter of Sept. 21, 1951, to Mr. T. Guthe of the World Health Organization, mobile teams with one venereal disease specialist, one serologist, one technician, and equipment were established in Kandihar, Herat, Meymene, Mezarisherif, and Djelalabadand and if the team currently stationed in Kabul were expanded so that native personnel could be trained and health department and health propaganda instituted, it would greatly benefit the Afghan people. There is only one medical school, with 30 students in the first year, that graduates 15 to 20 students each year. Among the faculty are professors from Turkey, Germany, and France. There is one physician to every 40,000 inhabitants. Even if the medical school expands, many years will elapse before public health can come into its own. Currently the allocation for the health department is 3.5% of the general budget; this amount is even inadequate to contend with tuberculosis, malaria, leprosy, parasitic diseases, seasonal epidemics, and salaries for personnel in a country with 12 million inhabitants. The intelligent and industrious Afghan people have preserved their independence in the face of much outside pressure and deserve assistance.

CORRESPONDENCE

CHEST PAIN FROM EXPOSURE TO SOIL DUST

To the Editor:—So-called "dust pneumonia" is a common entity in many areas of the United States where farmers are required to work in air heavily laden with dust particles. It consists of a primary bronchitis and pneumonitis following exposure to dust. In the past, the disease was frequently fatal. It is definitely infectious in character, although mechanical irritation plays a part in the etiology. Chest pain can be caused by exposure to dust. I have seen several patients who have been thoroughly studied for possible accessory factors, and none have been found. The patients were all farmers from the dust bowl area in southeastern Colorado, and each of them had recently begun farming operations that required long and intensive exposure to soil dust. During the period in which these patients were examined, soil dust was not excessive and exposure to dust probably was not any more intense than in any average area in the western states.

An example is a 24-year-old farmer who suffered a gunshot wound of the right apex in 1946; the bullet entered the erector spinae muscles on the right side at the level of the second thoracic vertebra and emerged at the anterior border of the axilla immediately inferior to the lower border of the pectoralis major muscle. This man first noticed vague chest pains several years later. He recalled then that he had been working with very dusty broom corn immediately preceding the onset of these pains. In his own words: "When we worked with the broom corn, the dust fogged up like a storm." He consulted his family physician who told him that he had normal temperature, pulse, respirations, and blood pressure and that there were no signs of disease in the chest. He was given 250 mg. of oxytetracycline (Terramycin) every 6 hours for 12 doses and told to remain indoors. He stated that the pain stopped within 48 hours and that he felt much better. There were no further symptoms until a month later when, once again, he was exposed to dust in the field. He experienced, at that time, moderately severe chest pain indefinitely localized through the right middle lung field. There were occasional severe and lancinating pains. He was again taken to his family physician and was told that the physical examination showed nothing abnormal. On the same day, he was admitted to the regional veterans' hospital where a thorough study was made that included careful neurological and general examination, with emphasis on determination of the possible effect of his old bullet wound on present symptoms. At the conclusion of these studies, the man was told that no cause for his pain had been found. During the next three months, he had repeated episodes of the pain, which became gradually severer. It was still localized, though indefinitely, in the right middle lung field, but it had begun to occur in the left hilar region as well as the right. The pain occasionally seemed to radiate to the right upper arm. Pain was described as dull, with occasional sharp, shooting pains in the same area; it was invariably relieved by staying indoors for a day or two. Physical and roentgenologic examination showed a normal chest. Routine blood and urine studies were normal. Our first thought was that this was a psychoneurotic episode, but careful questioning revealed nothing. We were puzzled by the fact that the pain disappeared during the 48 hours that the patient was in our clinic. The patient himself suggested that the cause might be the dust, and on careful questioning he could recall exposure before each episode of pain and relief within 48 hours of termination of exposure. He purchased a filter type dust mask and has had no further episodes while wearing it. At our request, he worked one day without the mask, and typical pain recurred. He was again examined carefully with the thought of a possible allergy in mind. No signs could be found. He has continued to wear the mask and has had no further symptoms.

Two other cases examined equally thoroughly resulted in similar conclusions and results. In this small series, it would seem that the only possibility is that the inhalation of soil dust produces pain. We believe that an infectious process has been ruled out in all of these cases and that the lesion is unquestionably a mechanical irritation of the larger bronchi. It is possible that anatomic factors causing a more rapid change in direction of the stream of air and dust may be responsible for the consistent appearance of pain on the right. Increasing mechanization in farming probably makes the machine operator subject to inhalation of large amounts of dust. We would recommend a simple filter mask for those so exposed.

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BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Naturopath's Violation of Medical Practice Act By Use of Title "Dr."—The defendant was tried in the municipal court on the charge that he unlawfully advertised and announced himself to be a practitioner of medicine and surgery before he had obtained a certificate from the state medical board as required by law. From a verdict of guilty, he appealed to the court of appeals of Ohio, Franklin County.

The record reveals that the defendant had an office located at 889 East Broad Street, Columbus, Ohio; that hanging over the entrance to the building was a neon sign that read "Dr. Farrand's Naturopathic Clinic." The sign was written in three lines with the word "naturopathic" in the middle and in letters much smaller than the others. Three witnesses testified on behalf of the state concerning treatments received from the defendant on or about the time specified.

It was urged by the defendant that the judgment is contrary to law and he alleged that the record does not reveal that (he) the defendant advertised himself as a practitioner of medicine or any of its branches. The question presented is, therefore, whether the word "naturopathic" as used in the sign prevented any statutory violation that might otherwise have existed. The practice of medicine, said the court, is defined by the General Code, which provides:

"A person shall be regarded as practicing medicine, surgery or midwifery, within the meaning of this chapter who uses the words or letters, 'Dr.' . . . which in any way represents him as engaged in the practice of medicine, surgery or midwifery, in any of its branches. . . .

"The use of any such words, letters or titles in such connection or under such circumstances as to induce the belief that the person who uses them is engaged in the practice of medicine, surgery or midwifery, shall be prima facie evidence of the intent of such person to represent himself as engaged in the practice of medicine, surgery or midwifery."

In connection with the foregoing statute, said the court, the record reveals that the defendant advertised himself as "Dr." The record also reveals that the giving of the massages and treatments for the cure or relief of bodily infirmities or diseases constituted such surrounding circumstances as to induce the belief that he was engaged in the practice of medicine. For these reasons all of the statutory requirements were met in order to sustain a conviction. The use of the word "naturopathic" in the sign does not prevent the act from being a violation. This was clearly pointed out in a prior Ohio case in which the court said:

"The appellant contends that he was practicing naturopathy which is not medicine or any of its branches within the purview of G. C. § 12694. We are not interested in what name or title the appellant gives to his profession, but we are only interested in whether or not what he did constituted the practicing of medicine as defined by G. C. § 1186."

The judgment is, therefore, not contrary to law, said the court of appeals, and the evidence was clearly sufficient to sustain the charge since a prima facie case was established that was never overcome as the defendant offered no evidence in his behalf. Accordingly the judgment of conviction was affirmed. *State v. Farrand, 105 N. E. (2d) 656 (Ohio, 1951).*

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Dermat. and Syphilol., Chicago

67:439-540 (May) 1953

Benign Inoculation Lymphoreticulosis (Cat-Scratch Disease): Report of Two Cases with Positive Skin Tests. J. Jambor and E. Emura.—p. 439.
Bullous Congenital Ichthyosiform Erythroderma. L. P. Barker and W. Sachs.—p. 443.
Major and Minor Surgical Procedures on Patients with Systemic Lupus Erythematosus. J. M. Greenhouse.—p. 456.
Onychomycosis Due to Microsporum Lanosum: Report of Case. R. E. Lyons.—p. 460.
Mycosis Fungoides: Further Report on Cases of Successful Treatment with Antimonials. J. Garb.—p 463.
Archives of Dermatology. E. Gahan.—p. 467.
First American Journal of Dermatology. E. Gahan.—p. 470.
Candida Albicans: Rapid Identification in Cultures Made Directly from Human Materials J. T. Weld.—p. 473.
Treatment of Tinea Capitis with Salicylanilide Preparations. J. G. Hopkins, C. S. Lingamfelter, M. R. Kiesselbach and O. A. Hamilton. —p. 479.
Simple Scheme for Deriving X-Ray Skin-Surface Dose Times. R. A. Langley.—p. 484
Use of Podophyllin (Podophyllum Resin) in Dermatology. L. M. Nelson. —p. 488.
Vitamin D_2 in Treatment of Nontuberculous Chronic Skin Diseases. E A. Strakosch.—p. 496.
Hairy Tongue: Report of Case Following Use of Aureomycin Ointment. F. Ronchese and A. B. Kern.—p. 503.
Hotchkiss-McManus Stain Versus Clearing in KOH in Diagnosis of Superficial Mycoses. E. Muskatblit, C. L. Taschdjian and A. G. Franks.—p. 507.

A.M.A. Arch. Otolaryngology, Chicago

57:475-590 (May) 1953

Chronic Vasomotor Rhinitis: Treatment by Submucous Diathermic Coagulation. L. Shahinian.—p. 475.
DL Difference Test: Improved Method for Clinical Measurement of Recruitment. J. F. Jerger —p. 490.
*Perceptive Deafness Associated with Prophylactic Use of Tetanus Antitoxin. M. D. Berger and A R Sachs.—p 501.
Hemangioma of Parotid Gland: Report of Two Cases. C. C. Cody III. —p. 509.
Postintubation Laryngeal Granuloma. M. F. Heller.—p. 514.
*Corticotropin (ACTH) in Lethal Granuloma of Nose and Face. E. W. Hagens, N. Parry and D. Markson.—p. 516.
Laryngeal Syncope and Hoarseness. I. H. Blaisdell and D. W. Brewer. —p. 520.
Esophageal Curette. E B Emerson Jr.—p. 522.
Plastic Surgery During Year 1951: Summaries of Bibliographic Material Available in Field of Otolaryngology. L. A. Peer and J. C. Walker Jr. —p. 525.

Perceptive Deafness Associated with Tetanus Antitoxin.—More than 50% of the neurological complications associated with serum injection have followed the prophylactic administration of tetanus antitoxin; when untreated or alum-precipitated tetanus toxoid is used, reactions of all kinds are markedly reduced. The neuropathological changes following injection of serum are not clearly understood, but they are apparently similar to allergic changes produced elsewhere in the body. Their occurrence cannot be foreseen. Auditory nerve involvement, now reported for the fifth time (twice after therapeutic doses), followed a prophylactic injection of 3,000 units of tetanus antitoxin given to a 23-year-old woman who suffered a laceration of the knee when thrown from a horse. There was no head injury, concussion, or unconsciousness. Generalized giant urticaria, necessitating the use of subcutaneously administered epinephrine for relief, appeared one week after the injection, and on the following day sudden deafness and persistent tinnitus developed. Vertigo was not present at any time. Examination three months later showed that the ear, nose, and throat structures were basically normal; hearing loss amounted to 69% in the right ear and 62% in the left ear, and was complete in both ears at 2,000 cps and above. The diagnosis was bilateral deafness, perceptive type with normal labyrinth, caused by serum reaction following a prophylactic dose of tetanus antitoxin. No improvement was found at follow-up. Attempts at therapy have generally proved ineffectual, but patients with serum sickness showing a tendency toward tinnitus, vertigo, or impairment of hearing should be given immediate treatment to counteract the impending nerve damage. Suggested remedies include epinephrine, the antihistamines, cortisone, and possibly histamine intravenously, but they must be used promptly before the pathological changes are established.

Corticotropin (ACTH) in Lethal Granuloma of Nose and Face.—Lethal granuloma of the nose and face is apparently an allergic lesion closely related to rheumatic fever and certain vascular lesions such as periarteritis nodosa and lupus erythematosus disseminatus. Efforts at treatment were formerly unsuccessful and death from exhaustion or hemorrhage was inevitable, but encouraging results have lately been obtained with cortisone. Seven months' follow-up of a 60-year-old man treated by the authors with corticotropin shows sustained healing of a lethal granuloma involving the nose and face. Complete surgical removal had previously been found impractical and ulceration had followed the breaking down of the operative incision. Penicillin and streptomycin were given intramuscularly in an attempt to control secondary infection and bacitracin and tyrothrycin ointments were applied locally without effect. The patient was then given 25 mg. of corticotropin intramuscularly four times a day and was placed on a low salt diet. Intake-output, weight, and blood pressure records were kept, but no complications of any kind were noted as a result of the treatment. The dosage schedule was changed, after five days, to 25 mg. three times a day for 12 days, and then to 17 mg. three times a day for 8 days. Definite improvement in the lesion was apparent at the end of about two weeks and continued steadily thereafter. Administration of corticotropin was stopped after 25 days, and no further treatment has been needed.

Alabama State Medical Assn. Journal, Montgomery

22:279-326 (May) 1953

Metabolic Aspects of Convalescence: 1953 Jerome Cochran Lecture. C. Lyons.—p. 279.
Ineffectiveness of ACTH and Riboflavin in Chronic Porphyria. J. M. McMahon.—p. 284.
Use of Polyethylene Tubing for Abdominal Drainage in Cirrhosis of Liver. W. Reynolds Jr.—p. 289.

22:327-378 (June) 1953

Management of Hand Injuries. F. A. Marzoni and S. E. Upchurch. —p. 327.
Management of Fertility Problems. H. H. Thomas.—p. 334.
Blood Groups in Retrolental Fibroplasia: Review of Literature. T. O. Paul.—p. 337.

American J. Digestive Diseases, Fort Wayne, Ind.

20:117-148 (May) 1953

Nutrition and Blood Pressure. C. M. Wilhelmj, J. McDonough and H. H. McCarthy.—p. 117.
Incidence of Asymptomatic Hiatus Hernia. W. F. Cernock.—p. 123
Significant Facts Concerning Papilla of Vater. J. A. Sterling.—p. 124.
Preliminary Evaluation of New Drug, Antrenyl: Effect on Gastric Secretion, Motility and Results in Symptomatic Care of Peptic Ulcer. P. E. Mattman and L. Strutner.—p. 126.
Calcified Cyst of Pancreas. J. T. Paul.—p. 136.
Spontaneous Hypoglycemia in Acute Gastro-Enteritis. W. Saphir.—p. 138.

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Titles marked with an asterisk (*) are abstracted.

American Journal of Human Genetics, Baltimore

5:1-106 (March) 1953. **Partial Index**

Dynamics of Racial Intermixture—Analysis Based on the American Negro. B. Glass and C. C. Li.—p. 1.
Seasonal Variation in American Live Birth Sex Ratio. H. M. Slatis. —p. 21.
Qualitative and Quantitative Control of Adult Hemoglobin Synthesis—Multiple Allele Hypothesis. H. A. Itano.—p. 34.
*Heberden's Nodes: Family History and Radiographic Appearance of Large Family. R. M. Stecher, A. H. Hersh and H. Hauser.—p. 46.
Possible Genetic Factors in Etiology of Rheumatic Fever. I. A. Uchida. —p. 61.
Pedigree of Syndactylism of Middle and Ring Fingers. M. F. A. Montagu. —p. 70.
Calculation of Reproductive Fitness and Mutation Rate of Gene for Chondrodystrophy. R. E. Popham.—p. 73.

Hereditary Aspects of Heberden's Nodes.—After defining Heberden's nodes, Stecher and associates state that previous studies on the nature of these nodes indicated that the idiopathic form of osteoarthritis of the finger joints is independent of other forms of osteoarthritis, of obesity, or of hypertension; it is related to the menopause, develops only in the presence of normal nerve supply to the hand and fingers, and is inherited as an autosomal sex-influenced trait, being dominant in women and recessive in men. They tested this theory of inheritance on a large family with nine affected persons out of 30 in three generations. Clinical and roentgenological data allow a distinction between idiopathic and traumatic Heberden's nodes. In idiopathic nodes the joint space is narrowed and irregular, and spurs arise from the bones about the terminal joint. In traumatic nodes the joint space is usually normal, the joint surfaces are smooth, and a heavy bony buttress extends dorsally from the proximal end of the distal phalanx. Early cases of idiopathic Heberden's nodes can be recognized radiographically when they are not noted clinically by small islands of bone in the extensor tendons near the distal phalanx. This also occurs as a result of poor expressivity, which explains certain heretofore apparent inconsistencies in the data and makes them thoroughly compatible with the proposed theory of inheritance.

American Journal of Surgery, New York

85:711-820 (June) 1953

Use of Dextran (Macrodex) in Burns: I. Review of Physiology of Dextran. E. V. Johnston and J. S. Lundy.—p. 713.
**Id.*: II. Clinical Evaluation in Eight Cases. E. V. Johnston, J. S. Lundy, W. A. Bennett and J. M. Janes.—p. 720.
Medicolegal Implications of Paralysis of Recurrent Laryngeal Nerve. D. E. Ross.—p. 729.
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Penetrating Wounds of Chest: Review of 251 Cases. J. L. Farringer Jr. and D. Carr.—p. 747.
Bile and Contrast Medium Reflux into Pancreatic Ducts. F. K. Kämmerling.—p. 752.
Secondary Operations on Biliary Tract. C. P. Schlicke.—p. 754.
Operative Treatment for Recent and Complete Tears of Coracoclavicular Ligaments. C. F. Orofino and A. H. Stein Jr.—p. 760.
Protrusio Acetabuli. Z. B. Friedenberg.—p. 764.
Epidermoid Cyst of Terminal Phalanx of Finger: With Review of Literature. I. Zadek and H. G. Cohen.—p. 771.
Gastrocolic Fistula Complicating Carcinoma: Report of Case Due to Carcinoma of Colon, with Successful Resection. R. J. Schweitzer and M. P. Osborne.—p. 775.
Solitary Diverticulitis of Cecum. H. M. Unger.—p. 780.

Clinical Evaluation of Dextran in Burns.—A 6% solution of dextran in 0.9% isotonic sodium chloride solution (Macrodex) was given a therapeutic trial in eight patients with thermal burns at the Mayo Clinic. Dextran, as a colloidal agent for combating the potential shock in severe burns, was thought to be equal to human plasma in similar cases. The correction of the existing shock and depletion of blood volume were satisfactory in the authors' patients. No untoward reactions or complications attributable to dextran were observed in these patients. Hemodilution anemia was not a problem. The concentration of proteins decreased after infusion of dextran; this decrease was attributed not only to the effects of hemodilution but also to an active supplanting of the plasma proteins, particularly the albumin fraction. A modification of the Kingsley biuret method has been devised for the determination of proteins and was used satisfactorily in the presence of dextran. Five of the eight patients died of their severe burns, and necropsies were performed in four. They revealed a singular lack of significant pathological changes, with the exception of reversible renal changes in the proximal and distal convoluted tubules. Further investigation of the relationship, if any, between these changes in the convoluted tubules of the kidney and those associated with the syndrome of "lower nephron nephrosis" is desirable. The authors are in accord with Evans and co-workers and others who recommend use of dextran solutions as plasma volume expanders in the treatment of burns that are not extensive. The authors recommend dextran as a useful agent in the early stages of more extensive burns, with the reservation that evidence of renal failure or hemoglobinuric nephrosis should, at present, be considered an indication for use of pooled plasma in preference to dextran. Oral intake of protein supplements is a necessary adjunct of burn therapy and takes on even greater importance with the prolonged use of dextran. Dextran is recommended primarily for use in the early or shock phase of burns and in conjunction with administration of whole blood. The oral route should be utilized whenever possible for administration of protein supplements and as much of the required electrolyte and other noncolloidal solutions as practicable.

Angiology, Baltimore

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*Treatment of Hypertension with Hydergine: Review of 200 Cases. R. Wilbrandt.—p. 183.
Use of Oral Hexamethonium Chloride (Methium®) in Treatment of Hypertension. P. H. Kuhn.—p. 195.
Essential Hypertension: Birth of Its Concept 200 Years Ago. M. Backer. —p. 207.
Arteriolar Circulation as Factor in Results Obtained in Sympathectomy for Peripheral Arterial Occlusive Disease. R. J. Popkin.—p. 210.
Regional Treatment of Thrombophlebitis. L. Blum.—p. 214.
Postphlebitic Syndrome: Discussion of Surgical Treatment. L. A. Ensenat. —p. 217.
Experimental Creation of Atrial Septal Defects, with Some Notes on Production of Right to Left Atrial Shunt. T. C. Moore and H. B. Shumacker Jr.—p. 244.
Fluorescein after Exercise: Method of Investigation in Peripheral Arterial Diseases. B. Ejrup.—p. 253.
*Paravertebral Block with Aqueous Phenol in Treatment of Vascular Disease. H. A. Haxton.—p. 268.

Treatment of Hypertension with Hydergine.—Hydergine (containing equal parts of the hydrogenated ergot alkaloids dihydroergocristine, dihydroergocornine and dihydroergokryptine) was given to 200 ambulant patients with hypertension. Half of the patients had mild hypertension with stage 1 and 2 fundus changes and the other half had severe hypertension with stage 3 and 4 fundus changes. Initial treatment was started with from 10 to 20 injections of 1 cc. of Hydergine daily or every other day; then combined treatment with 10 to 30 drops of Hydergine solution or 1 to 2 sublingual tablets three times daily supplemented by biweekly injections was carried out. Of the 100 patients with mild hypertension, 59 responded with lowering of blood pressure and 80 with improvement of subjective symptoms. The corresponding figures in the patients with severe hypertension were 31% and 52% respectively. Of 80 patients with mild hypertension without renal damage, 54 (67.5%) reacted with lowering of blood pressure and 67 (84%) with improvement of subjective symptoms. Of 20 patients with mild hypertension and some renal damage, only 5 (25%) and 13 (65%), respectively, showed improvement. In 54 patients with severe hypertension without renal damage, Hydergine lowered the blood pressure in 27 (50%) and improved subjective symptoms in 39 (72%). Corresponding values for 46 patients with severe hypertension and with renal damage were 10% and 30%. These differences are statistically significant. Experiments with placebos showed that the effect of Hydergine on the blood pressure and subjective symptoms was in most patients not psychogenic. Hydergine was well tolerated. The advantage of ambulant treatment and the necessity of prolonged therapy (not less than three months) is emphasized. Follow-up of patients was not long enough to permit the evaluation of the effect of Hydergine on survival rates.

Paravertebral Block with Aqueous Phenol.—Paravertebral infiltration of the sympathetic chain with 10% phenol in water, either by the lumbar or the thoracic route, was used in 400 patients with circulatory disorders and hyperhidrosis in the extremities. The method was found to be satisfactory for producing lasting sympathetic interruption in the extremities. The substance acts by destruction of the sympathetic ganglion cells. Striking relief of pain and accelerated healing of necrotic areas were obtained in a high proportion of cases of arteriosclerotic ischemia of the foot. About 50% of the patients with intermittent claudication obtained distinct benefit from paravertebral injection of the lumbar chain. Good improvement was obtained in erythrocyanosis and perniosis. If only temporary benefit in acute thrombophlebitis results from a single paravertebral block with *procaine hydrochloride, it is* better to inject aqueous phenol and secure a more lasting sympathetic interruption than to carry out repeated procaine injections. In some cases in which ulcers were present for several years after thrombophlebitis in the legs, injections of phenol were followed by healing within a few weeks. Several cases of mild hyperhidrosis of hands and feet have been successfully treated by paravertebral block with aqueous phenol, improvement having lasted over three years in some of the patients. Although the results of sympathectomy may be more reliable and more lasting, in the many cases that are unsuitable for sympathectomy injection of 10% phenol is an effective substitute. Hyperesthesia in the groin after the lumbar injection, caused by irritation of the genitofemoral nerve, developed in about 10% of the patients. It was seldom troublesome and subsided in about three weeks. The chances of complications are considerably greater with injection of the cervicothoracic portion of the sympathetic chain; intercostal neuritis lasting occasionally up to two months resulted in about 20% of the cases. Complications can be minimized with sound technique and accurate placement of the injection around the sympathetic chain where it is not near important and easily damaged structures.

Annals of Surgery, Philadelphia

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Thrombo-Embolic Phenomenon—Local Process with Regional Spread and Systemic Complications. M. Gage.—p. 577.
Hind Gut Duplication—Doubling of Colon and Genital Urinary Tracts. M. M. Ravitch.—p. 588.
*Selective Lobotomy in Treatment of Intractable Pain. E. G. Grantham and R. G. Spurling.—p. 602.
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Bronchogenic Carcinoma Simulating Benign Pulmonary Disease. G. V. Brindley Jr.—p. 616.
*An Assessment of Therapy of Burns: Clinical Study. C. A. Moyer. —p. 628.
Treatment of Fibrosarcoma. E. S. Stafford and G. E. Ward.—p. 639.
Adrenal Tumor with Cushing's Syndrome. A. W. Hartman, L. B. Reppert and R. L. Smith.—p. 645.
Hemangiomas. J. B. Brown, M. P. Fryer and F. McDowell.—p. 652.
**Carcinoma of Cervix—An Experience with Surgical Treatment.* J. V. Meigs.—p. 660.
Fallibility of Roentgenograms in Diagnosing Lesions of Colon. J. M. T. Finney Jr. and D. H. Stone.—p. 674.
Cancer as a Chronic Disease. J. J. Morton Jr. and J. H. Morton.—p. 683.
Hemipelvectomy and Hip Disarticulation for Malignant Tumors of Pelvis and Lower Extremity. C. M. Lee Jr. and L. P. Alt.—p. 704.
Use of ACTH and Cortisone in Surgery. W. H. Cole, W. J. Grove and M. M. Montgomery.—p. 718.
Some Common Denominators in 1200 Cases of Cardiac Arrest. H. E. Stephenson Jr., L. C. Reid and J. W. Hinton.—p. 731.
Aortic Stenosis: Surgical Problem. R. A. Daniel Jr. and H. W. Scott Jr. —p. 745.
Progressive Constrictive Occlusion of Aorta with Wiring and Electrothermic Coagulation for Treatment of Arteriosclerotic Aneurysms of Abdominal Aorta. A. H. Blakemore.—p. 760.
Some Technical Considerations in Operative Treatment of Varicose Veins. A. Webb Jr.—p. 778.

Selective Lobotomy for Intractable Pain.—Discussing the use of lobotomy in the treatment of intractable pain, Grantham and Spurling say that in 1949 Grantham devised a technique for the selective destruction of certain portions of the prefrontal lobe to avoid resultant intellectual deficits and convulsive seizures. Results similar to those of a complete frontal lobotomy could be achieved by the division of the fibers of the *two medial quadrants of the prefrontal lobe. Electrocoagulation* with a high frequency current is applied by a special needle electrode through bilateral burr holes placed within the hair line 6 or 7 cm. above the glabella and 2½ cm. from the midline. The division was limited to the medial ventral quadrant, and if this was not sufficient, a similar lesion was made in the dorsal ventral quadrant later, thus destroying the association pathways from the medial and orbital surfaces of the prefrontal lobe. At first, only patients in the terminal stages of malignant disease were selected for the operation. These patients were addicted to morphine and no other operative procedure offered any prospect of relief. Later the operation was offered to other patients. To date there have been 71 operations on 51 patients, 18 having a second stage procedure, and two a third stage procedure. Malignant disease was present in 35 and atypical facial neuralgia in 3; the others had causalgia, thalamic syndrome, amebic liver abscess, scleroderma, ununited fracture of the femur, arthritis, complicated lumbar disk disease, and tabes dorsalis. Twenty-four patients lived less than three months after the operation, and in 15 of these pain became tolerable and narcotics were no longer required. Of the 26 patients who survived the operation for up to 43 months (average 15 months), 19 obtained very satisfactory results. Six of the 13 of this group, who are still alive, are carrying on their household duties, 3 men are gainfully employed, and 4 men are semi-invalids because of the primary disease. No patient upon whom this operation was performed for either intractable pain or psychosis (132 patients) developed convulsive phenomena. None of the patients on whom the operation was performed for intractable pain had detectable change in personality. There was one operative death. The authors feel that the *operation should be reserved for those patients with or with-*out drug addiction in whom extreme tension and anxiety are prominent.

***Assessment of Therapy of Burns.**—This statistical evaluation* compares the relative efficacy of the two methods of treating burns and scalds in four institutions in the United States between the years 1944 and 1951. The two methods differed significantly in only two respects: in one whole blood and a buffered saline solution were used to treat peripheral circulatory failure and in the other plasma was employed. In the method in which blood and buffered saline were used to treat the shock, sodium chloride solution was given by mouth for 24 to 60 hours to prevent osmolar dilution (water intoxication) and in the other there was no restriction on water intake. Occlusive dressings were used in all cases. Sulfonamides were given parenterally to a few persons, and penicillin was routinely administered to all patients after 1945. Grafting was performed *in all of the four institutions* as soon as possible. The mortality from thermal injury was the same regardless of the type of therapy employed for injuries covering 15 to 35% and 70 to 100% of the body's surface. The mortality associated with thermal injuries covering 35 to 70% of the body was significantly less in Dallas between 1947 and 1952 and in Kankakee, Ill., than it was in Dallas in 1944 to 1947, and in two hospitals in St. Louis between 1946 and 1951. The reasons for the difference are not apparent. A simple method is presented for the comparative evaluation of burn and scald death rates based on American experience but patterned after the method of Bull and Squire of Glasgow, Scotland. The death rate from thermal injuries covering more than 55% of body surface is still 83%, in spite of the capacity to keep half of those who die alive for five or more days. The death rate among 315 patients who suffered second and third degree burns or scalds covering more than 15% of body surface was 23.8%. The death rate from burns and scalds in four American institutions was practically identical with that observed in Glasgow, Scotland, and Birmingham, England. The treatment of shock is no longer the major problem in burned patients.

Surgical Treatment of Carcinoma of Cervix.—Meigs analyzed the results he obtained with surgical treatment of carcinoma of the cervix in 100 women. The first patient was operated on in 1939 and the last in 1948. The patients all had stage 1 or 2 carcinoma. The series was slow to accumulate, because the author tried to operate on good risk, fairly young, and not too fat patients. The 100 patients were operated on without a death, owing to the use of blood transfusions, antibiotics, sulfonamides, and, above all, the surgeon's judgment as to whether or not he could safely do a radical operation. With increasing experience, nearly all patients with cervical cancer are now considered operable, but surgical treatment of the advanced cases is experimental. Meigs considers here only those who can be operated upon without the removal of bladder or rectum. He feels that roentgen ray and radium irradiation is still the proper treatment for carcinoma of the cervix. A solution of the ureteral, bladder, and rectal problems must be found before surgery can be advocated as a definitive treatment. Of the 100 patients, 75 were living and well five years postoperatively; in fact, many patients lived well beyond five years. Evaluation of the results with regard to the different grades of malignancy revealed that in grade 1 results are very satisfactory, but strangely enough results were better in grade 4 than in grade 3 and in grade 3 better than in grade 2. Of the 25 patients who died, 5 did so because of intercurrent disease and there was no record of recurrence in these 5. In 17 of the fatalities the lymph nodes were involved. Some of the patients had radiation treatment before the operation. A few with fungating growths were deliberately given one-half the usual roentgen ray and radium treatment. More patients who were not treated with radiation are living; more patients who were treated with radiation had lymph node involvement, and there were more fistulas in patients not treated with radiation than in those who were. No cancer was found in the cervix in 21 of the 46 irradiated patients, and only 6 of the 18 still living at the time of writing had received adequate irradiation. Heavy doses of radiation are not necessary to cure localized carcinoma and lymph node lesions will not be destroyed by irradiation. The results of surgical treatment of cancer of the cervix are very satisfactory. The importance of a check of "cured" cases by the pathologist is important, because the cure rate of cancer in situ is nearly 100%, and such cases should not figure in an evaluation of a therapeutic method.

Cincinnati Journal of Medicine

34:197-238 (June) 1953

•Surgical Treatment of Bleeding Esophageal Varices Secondary to Cirrhosis of Liver and Banti's Syndrome. R. R. Linton.—p. 97.

Surgical Treatment of Bleeding Esophageal Varices.—Linton comments on the selection of patients for portacaval shunts and the types of shunts. He reviews results in 83 shunt operations in 79 patients with bleeding esophageal varices. He considers the best method of treatment to be the by-passing of the portal venous blood in patients with bleeding esophageal varices secondary to portal hypertension by the construction of a splenorenal or a direct portacaval shunt. It is important to evaluate the function of the liver in all patients subjected to this type of surgery. In the majority of patients, a splenectomy with an end-to-side splenorenal anastomosis is the preferable procedure, since it carries less risk than a direct portacaval shunt, especially in patients with severely diseased livers. It also carries less risk in patients with the so-called Banti's syndrome (congestive splenomegaly), since in them the exposure of the portal vein is frequently impossible due to the cavernomatous change in the gastrohepatic ligament. Portacaval shunts should be reserved for the treatment of bleeding esophageal varices; they are not to be recommended for the treatment of ascites alone. A surgeon should not do a splenectomy alone unless he is prepared to do a splenorenal anastomosis at the same operation, since this may be the only opportunity to construct a satisfactory shunt.

Circulation, New York

7:801-960 (June) 1953

Degree of Coronary Atherosclerosis in Bilaterally Oophorectomized Women. J. H. Wuest Jr., T. J. Dry and J. E. Edwards.—p. 801.

Studies in Peripheral Arterial Occlusive Disease: II. Clinical Findings in Patients with Advanced Arterial Obstruction and Gangrene. S. Wessler and N. R. Silberg.—p. 810.

Atrial Septal Defects in Children: An Angiocardiographic Study. J. Lind and C. Wegelius.—p. 819.

Transposition of Great Vessels. J. D. Keith, C. A. Neill, P. Vlad and others.—p. 830.

Significance of Changes in Amplitude of First Heart Sound in Children with A-V Block. M. A. Shearn, E. Tarr and D. A. Rytand.—p. 839.

•Studies of Vasospasm: I. Use of Glyceryl Trinitrate as Diagnostic Test of Peripheral Pulses. W. T. Foley, E. McDevitt, J. A. Tulloch and others.—p. 847.

•Mortality and Other Studies Questioning Evidence for and Value of Routine Anticoagulant Therapy in Acute Myocardial Infarction. S. Schnur.—p. 855.

Study of Reflex Venomotor Reactions in Man. J. J. Duggan, V. L. Love and R. H. Lyons.—p. 869.

Response to Psychologic Stress in Persons Who are Potentially Hypertensive. R. E. Harris, M. Sokolow, L. G. Carpenter Jr. and others. —p. 874.

•Effect of Valsalva Maneuver on Circulation: III. Influence of Heart Disease on Expected Poststraining Overshoot. E. Elisberg, E. Singian, G. Miller and L. N. Katz.—p. 880.

Relationship Between Anatomic Position of Heart and Electrocardiogram: Criticism of "Unipolar" Electrocardiography. R. P. Grant.—p. 890.

Electrocardiographic Effects of Intravenous Veratrum Viride. S. R. Elek, J. D. McNair and G. C. Griffith.—p. 903.

Studies Utilizing Portable Electromagnetic Ballistocardiograph: IV. Clinical Significance of Serial Ballistocardiograms Following Acute Myocardial Infarction. H. Mandelbaum and R. A. Mandelbaum.—p. 910.

Right Auricular Electrokymogram of Normal Subjects. E. Booth, K. Willis, T. J. Reeves and T. R. Harrison.—p. 916.

An Analysis of Oscillometric Pulsations. S. Rodbard and F. Jannotta. —p. 922.

Proposed Nomenclature and Convention for Recording Ballistocardiogram. J. R. Braunstein.—p. 927.

First Report of Committee on Ballistocardiographic Terminology. I. Starr, J. R. Braunstein, W. Dock and others.—p. 929.

Treatment of Chronic Cor Pulmonale. R. M. Harvey, M. I. Ferrer and A. Cournand.—p. 932.

Studies of Vasospasm.—Use of glyceryl trinitrate in a test for vasospasm was studied in 96 persons. Nineteen had normal vasomotor tone, 29 had increased vasomotor tone as a result of Raynaud's disease and other syndromes with vasospasm as a prominent feature, and 48 had occlusive arterial disease. Observations were made before and after sublingual administration of 0.4 mg. of the drug on the character of the peripheral pulses, pulse rate, blood pressure, oscillometric readings in the feet and legs (and, when appropriate, at the wrist), and the color, temperature, and moisture of the hands and feet. Thirteen of the group were also tested in a constant temperature room where skin temperature studies and arterial pulse tracings were made. The results observed permit the following conclusions: Sublingual administration of glyceryl trinitrate aids greatly in the interpretation of the weak or peripheral pulse. It releases vasomotor tone of peripheral arteries, and the pulse that is weak or absent as a result of vascular spasm becomes bounding in character. Vessels totally occluded by organic disease remain impalpable. Vessels organically diseased and partially occluded increase their pulsation only to the degree of tone permitted by the pathological changes. Oscillometric readings are increased in proportion to the release of vasomotor tone. In most of the patients responding with an increase in pulsation, no increase in skin temperature or change in color or moisture of the skin occurred. Occasionally such changes were observed in digits in which the vessels had been in very severe spasm as in an acute Raynaud's syndrome. In no patient was there any serious discomfort. The glyceryl trinitrate test is simple to carry out and has practical clinical importance as a diagnostic procedure. It should not be used on patients in whom the maintenance of vasomotor tone is important, as in shock, febrile conditions, and debilitation. Recent myocardial infarction, anemia, and increased intraocular and intracranial pressure are additional contraindications to this test.

Anticoagulants in Myocardial Infarction.—The clinical records of 1,350 patients with coronary thrombosis and myocardial infarction who were hospitalized in several hospitals from 1941 to 1950 were studied with respect to (1) correlation of the patient's condition on admission with the mortality rate, utilizing a quantitative method for determining degrees of illness; (2) the relationship of age to mortality rate; (3) comparison of certain items in this group with similar items in the study of the committee for the evaluation of anticoagulants in the treatment of myocardial infarction of the American Heart Association; (4) the effect of anticoagulant therapy on the mortality rate in several hospitals during one year as compared with mortality rates before anticoagulants were used. The published reports of reduced incidence of thromboembolism in treated groups as compared with control groups have not conclusively demonstrated that the decrease is wholly attributable to anticoagulant therapy rather than to such other factors as erroneous diagnosis, unconscious bias of the medical examiner, and deviations from the stringent requirements of truly controlled studies. Unless additional evidence to the contrary is presented, there would appear to be little reason to prescribe anticoagulants routinely in persons who are not severely ill because of the expense, inconvenience, dangers, and difficulty of maintaining constantly "effective" prothrombin blood levels. In more seriously ill patients, the theoretical advantages of anticoagulant therapy justify this treatment even though there may be some question as to whether its value has been demonstrated.

Effect of Valsalva Maneuver on the Circulation.—A study was made of the circulatory responses to the Valsalva maneuver by 10 normal persons and 51 patients. Of the patients, 22 had mitral stenosis, 3 pericarditis, 3 pulmonary vascular disease, 5 kyphoscoliosis, 3 organic heart disease without congestive failure, 6 organic heart disease with a history of congestive failure, and 9 congenital heart disease. The normal response following sustained straining, as in the Valsalva maneuver, is a rise in systemic arterial pressure and a reflex slowing of the heart rate. Normally there is a small overshoot in pulmonary artery pressure. This normal response was abolished in all three patients with pericarditis, in several patients with organic heart disease in whom congestive heart failure had been conspicuous in the past or was present at the time of testing, in some of the patients with pulmonary vascular disease (including kyphoscoliosis), and in some types of congenital heart disease. Pulmonary artery pressure did not rise after straining when there had been failure of the right ventricle. By observing the development of bradycardia electrocardiographically following straining, the clinician has a simple and useful tool for appraising the integrity of the cardiovascular system, since the presence of bradycardia suggests that overshoot in the systemic arterial pressure occurs. The absence of bradycardia when the autonomous system is intact suggests that an overshoot of systemic arterial pressure does not occur. The Valsalva maneuver, when performed under electrocardiographic control, is a simple, dynamic stress test of the circulation.

Gastroenterology, Baltimore

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Emergency and Definitive Treatment of Bleeding Esophageal Varices. R. R. Linton.—p. 1.
Effects of Surgical Treatment of Esophageal Varices on Portal Venous Pressure and Hepatic Function: Preliminary Observations. E. D. Palmer, V. M. Sborov and E. J. Jahnke Jr.—p. 10.
Use of Head Mask to Aid Esophageal Tamponage. A. Wallace III, W. B. Wallace and D. C. Balfour Jr.—p. 20.
Recovery of Bromsulfalein Following Intravenous and Oral Administration of Dye. B. Giges, W. C. Morse, W. S. Sharon and J. Wynn. —p. 23.
Cortisone in Decompensated Portal Cirrhosis: Preliminary Report. S. J. Zoeckler and G. J. Hegstrom.—p. 30.
Studies on Effect of Intravenously Administered Choline Chloride in Patients With and Without Liver Disease. F. Steigmann, R. Firestein and J. de la Huerga.—p. 44.
Liver Structure in Nonfatal Malaria. T. E. Corcoran, G. J. Hegstrom, S. J. Zoeckler and P. G. Keil.—p. 53.
Differential Diagnosis of Jaundice: Relative Value of Clinical Impression, Laboratory Tests, and Aspiration Liver Biopsy. M. P. Tyor and D. Cayer.—p. 63.
Antrum Motility as Stimulus for Gastric Secretion. L. R. Dragstedt, H. A. Oberhelman Jr., J. M. Zubiran and E. R. Woodward.—p. 71.
Study of Effect of l-Ascorbic Acid on Gastric Digestion in Vitro. A. W. Breidenbach and F. E. Ray.—p. 79.
Studies on New Anticholinergic Drug, Antrenyl. B. R. Rowen, W. H. Bachrach, J. A. Halsted and H. Schapiro.—p. 86.

Georgia Medical Association Journal, Atlanta

42:225-262 (May) 1953

Treatment of Tuberculosis Meningitis. R. F. Payne.—p. 234.
Role of Cytology in Prostatic Cancer. D. C. Williams Jr. and H. E. Nieburgs.—p. 238.
Polyradiculoneuritis (Landry-Guillain-Barré Syndrome) Associated with Infectious Mononucleosis: Report of Case. C. F. Wilkins Jr.—p. 241.
Application of Dynamic Psychiatry to Clinical Medicine. R. P. Alexander.—p. 243.
Syncopal Seizures in Recumbent Position in Late Pregnancy. E. T. Arnold Jr.—p. 246.
Intercostal Nerve Block with Efocaine in Management of Post-Thoracotomy Patient. M. B. Davis Jr. and L. Rumble Jr.—p. 247.
Barium Peritonitis. H. M. Olnick and W. M. Watkins.—p. 253.

Geriatrics, Minneapolis

8:239-295 (May) 1953

Diagnosis and Surgical Treatment of Breast Carcinoma. C. E. Gardner Jr.—p. 239.
Anesthetic Considerations in Geriatric Patients. M. L. Bernstine and A. A. Golden.—p. 246.
*Occupational Potentialities of the Older Cardiac Patient. L. H. Bronstein, L. J. Goldwater and B. Kresky.—p. 252.
Electroshock Therapy in Functional Psychoses of Old Age. G. W. Robinson Jr. and J. D. DeMott.—p. 259.
Renal Function in the Aged. A. D. Mitchell and W. L. Valk.—p. 263.
Morbid Anatomy of Old Age: IV. Causes of Death. T. H. Howell and A. P. Piggot.—p. 267.

Occupational Potentialities of the Older Cardiac Patient.—The report concerns persons who are 55 years of age or over at the time heart disease develops. Records of 580 patients revealed that many patients with cardiac defects in the sixth and seventh decades of life can and do work successfully. Although continued employment does not have any adverse effect on the course of heart disease, the employment of the cardiac patient over 55 is less successful than that of the younger person with heart disease. The cardiac capacity of patients whose heart disease develops after 55 years of age is usually initially diminished to a greater extent than that of younger cardiac patients. Selective job placement presents greater problems in elderly persons. A study of the employment needs of 33 patients over 55 years of age with degenerative heart disease showed that 20 were working and 6 more were considered employable; only 7 were unable to work because of cardiac disability. This study and statistical analyses indicate that counseling and placement agencies should interview all cardiac patients whom the physician considers employable. Physicians should supplement the functional and therapeutic classifications with specific recommendations concerning hours per day or per week, and amounts of carrying, lifting, walking, and traveling a patient can do. Through selective placement, and with a reasonable amount of medical supervision, a considerable proportion of cardiac patients in the sixth and seventh decades can remain in useful employment.

Hawaii Medical Journal, Honolulu

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Possible Existence of Clinical Toxoplasmosis in Hawaii. P. G. Stitt and M. Levine.—p. 351.
Congenital Toxoplasmosis: Report of Fatal Case in Hawaii. I. L. Tilden. —p. 355.
Observations on Study of 100 Cases of Acute Upper Respiratory Disease. K. F. Kuhlman.—p. 359.
Neonatal Emergencies. S. A. Wile.—p. 362.
Note on Fungus Flora of Hawaiian Atmosphere. C. Halde.—p. 370.

Illinois Medical Journal, Chicago

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This I Believe. L. P. A. Sweeney.—p. 325.
Surgical Correction of Certain Gastrointestinal Abnormalities in Infancy. W. L. Riker.—p. 332.
Integration of Exfoliative Cytology with General Pathology. E. A. McGrew.—p. 334.
Problems and Pitfalls in Cataract Surgery. A. C. Frell.—p. 337.
Rhinoscleroma. P. H. Holinger, R. J. McMahon and K. C. Johnston. —p. 341.
Cold Injuries. D. I. Abramson, N. O. Calloway, P. J. Farago and R. M. Kark.—p. 344.
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Diagnostic Sign of Interstitial Hernia of Linea Semilunaris. F. H. Straus and M. J. Alexander.—p. 353.

Journal of Experimental Medicine, New York

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Control by Factors Distinct from S Transforming *Principle of Amount of Capsular Polysaccharide Produced by Type III Pneumococci.* C. M. MacLeod and M. R. Krauss.—p. 767.

Transformation of Type Specificity of Meningococci: Change in Heritable Type Induced by Type-Specific Extracts Containing Desoxyribonucleic Acid. H. E. Alexander and W. Redman.—p. 797.

Virus and Cell Interaction with Ion Exchangers. T. Puck and B. Sagik.—p. 807.

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*Experiences with Hypophysectomy in Man. R. Luft and H. Olivecrona. —p. 301.

Hypophysectomy in Man.—The authors report on 26 hypophysectomies. Three of the patients had Cushing's syndrome, 7 malignant hypertension, 4 diabetes mellitus, and 12 malignant tumors. Coagulation of the pituitary was done in two of the three patients with Cushing's syndrome and partial resection of the gland in one. Rapid improvement resulted from coagulation in one patient, who was well 15 months after the operation and had even become pregnant. The two other patients died within the first three postoperative days. Results of hypophysectomy in the patients with malignant hypertension were disappointing; five patients died of an extradural clot, subdural hematoma, or acute cerebral edema within the first few postoperative days. The two patients who stood the operation best died of uremia two and five months after the operation. One of the four patients with diabetes mellitus made an uneventful recovery and now requires 12 units of insulin instead of the 80 units required before the operation. The other three patients died within the first few postoperative days. Acute cerebral edema after hypophysectomy appears to occur only in patients with diabetes mellitus, Cushing's syndrome, and malignant hypertension. This reaction did not occur, at least not in a violent form, after hypophysectomy in patients with malignant tumors. Of these 12 patients, 1 had carcinoma of the prostate gland, 1 malignant chorionepithelioma, 1 hypernephroma, and 9 carcinoma of the breast. Difficulties of urination and defecation disappeared for three months after incomplete hypophysectomy in the patient with cancer of the prostate gland. Relief of pain lasted until his death, which occurred four months after the operation. The patient with hypernephroma tolerated the hypophysectomy well, but the disease was progressing three months after the operation. The patient with malignant chorionepithelioma was temporarily improved for four months after the operation, but died six months after the operation. In the nine patients with carcinoma of the breast the disease was advanced, with large recurrences after previous mastectomies and with pulmonary and other metastatic lesions. Follow-up after hypophysectomy has been too short to permit any conclusion concerning the effect of the operation on the cancer. The authors' experience indicates that hypophysectomy is well tolerated, that reactions similar to those observed in endocrine disorders and malignant hypertension do not occur, and that unless hypophysectomy is complete only a temporary effect of short duration is to be expected. When the hypophysectomy is complete, as it was in a 49-year-old woman, a remarkable regression of the carcinoma may occur, although the authors do not know how long this improvement is going to last. They believe that carcinomas of the breast and possibly also of the prostate, as well as chorionic epitheliomas in a stage when other methods of treatment are no longer effective, offer a promising field for hypophysectomy.

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Persistent Carotid-Basilar Anastomosis: Three Arteriographically Demonstrated Cases with One Anatomical Specimen. C. R. Harrison and C. Luttrell.—p. 205.

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Tracheotomy in Neurosurgery. R. H. Dunsmore, W. B. Scoville, F. Reilly and B. B. Whitcomb.—p. 228.

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Colloid Cysts of Third Ventricle: Report of Seven Cases. J. L. Poppen, V. Reyes and G. Horrax.—p. 242.

Post-Traumatic Pulsating Exophthalmos Caused by Perforation of an Eroded Orbital Roof by Hydrocephalic Brain. H. Verbiest.—p. 264.

Controlled Hypotension. M. S. Sadove, G. M. Wyant, L. A. Gittelson and P. C. Bucy.—p. 272.

Pneumoencephalography in Chromophobe Adenomas of Hypophysis. L. Bakay and J. C. White.—p. 284.

Surgery of Cranium Bifidum and Spina Bifida: Follow-Up Report of 64 Cases. G. A. Cohn and W. B. Hamby.—p. 297.

*Experiences with Hypophysectomy in Man. R. Luft and H. Olivecrona.—p. 301.

Hypophysectomy in Man.—The authors report on 26 hypophysectomies. Three of the patients had Cushing's syndrome, 7 malignant hypertension, 4 diabetes mellitus, and 12 malignant tumors. Coagulation of the pituitary was done in two of the three patients with Cushing's syndrome and partial resection of the gland in one. Rapid improvement resulted from coagulation in one patient, who was well 15 months after the operation and had even become pregnant. The two other patients died within the first three postoperative days. Results of hypophysectomy in the patients with malignant hypertension were disappointing; five patients died of an extradural clot, subdural hematoma, or acute cerebral edema within the first few postoperative days. The two patients who stood the operation best died of uremia two and five months after the operation. One of the four patients with diabetes mellitus made an uneventful recovery and now requires 12 units of insulin instead of the 80 units required before the operation. The other three patients died within the first few postoperative days. Acute cerebral edema after hypophysectomy appears to occur only in patients with diabetes mellitus, Cushing's syndrome, and malignant hypertension. This reaction did not occur, at least not in a violent form, after hypophysectomy in patients with malignant tumors. Of these 12 patients, 1 had carcinoma of the prostate gland, 1 malignant chorionepithelioma, 1 hypernephroma, and 9 carcinoma of the breast. Difficulties of urination and defecation disappeared for three months after incomplete hypophysectomy in the patient with cancer of the prostate gland. Relief of pain lasted until his death, which occurred four months after the operation. The patient with hypernephroma tolerated the hypophysectomy well, but the disease was progressing three months after the operation. The patient with malignant chorionepithelioma was temporarily improved for four months after the operation, but died six months after the operation. In the nine patients with carcinoma of the breast the disease was advanced, with large recurrences after previous mastectomies and with pulmonary and other metastatic lesions. Follow-up after hypophysectomy has been too short to permit any conclusion concerning the effect of the operation on the cancer. The authors' experience indicates that hypophysectomy is well tolerated, that reactions similar to those observed in endocrine disorders and malignant hypertension do not occur, and that unless hypophysectomy is complete only a temporary effect of short duration is to be expected. When the hypophysectomy is complete, as it was in a 49-year-old woman, a remarkable regression of the carcinoma may occur, although the authors do not know how long this improvement is going to last. They believe that carcinomas of the breast and possibly also of the prostate, as well as chorionic epitheliomas in a stage when other methods of treatment are no longer effective, offer a promising field for hypophysectomy.

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Nutritional Deficiencies in Mice Caused by Stress Agents. D. K. Bosshardt and J. W. Huff.—p. 117.
Effect of Dietary Amino Acid Levels Upon Oxidation of L- and D-Amino Acids by Kidney Tissue. A. L. Sheffner and O. Bergeim.—p. 141.

Journal of the Student A.M.A., Chicago

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Organizing a Small Clinic. P. Williamson.—p. 57.

Journal of Urology, Baltimore

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Bilateral Giant Hydronephrosis. D. M. Davis.—p. 739.
*Streptomycin, PAS and Isoniazid in Renal Tuberculosis. J. K. Lattimer, F. Lerman, P. Lerman and L. L. Spivack.—p. 745.
New Type of Artificial Kidney: II. Treatment of Acute and Chronic Uremia. G. Hollander, J. A. Sterling and J. C. Doane.—p. 753.
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*Carcinoma of Prostate: Results of Total Prostatectomy. F. H. Colby. —p. 797.
*Erythroplasia of Queyrat. J. W. Merricks and T. L. C. Cottrell.—p. 807.
*Queyrat's Erythroplasia with Carcinomatous Invasion: Report of Unusual Case. S. Friedman.—p. 813.
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Leiomyosarcoma of Spermatic Cord. H. N. Wessel.—p. 823.
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Radioresistant Testis Tumors: Results in 133 Cases; Five-Year Follow-Up. L. G. Lewis.—p. 841.
Malignant Testis Tumor with Hepatic Metastasis in Grizzly Bear. W. E. Goodwin, J. N. deKlerk and D. C. McGoon.—p. 845.
Urokon Sodium 70 Per Cent in Excretory Urography. C. N. Barry and D. K. Rose.—p. 849.

Chemotherapy in Renal Tuberculosis.—A total of 458 patients with genitourinary tuberculosis have been treated with chemotherapy alone by the research group of the Veterans Administration. The objective was to determine the optimum long-range dosage plan for streptomycin and other new antituberculosis drugs. This study has now been in progress for five years. Streptomycin and *p*-aminosalicylic acid were effective in slowing the progress of the disease, even when the urine could not be sterilized. Inoperable, bilateral renal tuberculosis was treated with from one to three years of intermittent combined therapy (12 gm. of *p*-aminosalicylic acid daily, plus 1 gm. of streptomycin two times per week). Unilateral, destructive renal tuberculosis, with visible x-ray changes and with the contralateral kidney showing no pus cells and no tubercle bacilli in the ureteral urine, was treated by nephrectomy. In occasional cases partial nephrectomy proved practical when combined with chemotherapy. Chemotherapy was continued after operations until pyuria ceased. Isoniazid improves the bladder lesions of renal tuberculosis, and the urine culture becomes negative in some patients. Limitations of isoniazid appear to be the same as those of streptomycin if the drug is used alone. Drug resistance may develop after from four to eight weeks, and the urine from large necrotic kidney lesions cannot always be sterilized. In patients with nitrogen retention isoniazid accumulates in the blood, and blood levels should be ascertained in order to prevent convulsions. Hyper-reflexia is not a true index to the blood level and cannot be depended on as a warning sign of impending toxicity. When blood levels can be determined, this drug can be an important addition to the treatment of even uremic patients with massive kidney lesions. Drug resistance was the most important limiting factor in the effectiveness of streptomycin, *p*-aminosalicylic acid, and isoniazid. Since the mode of action of all three drugs appears to be different, it is reasonable to assume that a combination may greatly increase their effectiveness and further defer the development of drug resistance. Five years of follow-up studies appeared to justify the conclusion that modern chemotherapy can at least modify the lethal course of renal tuberculosis.

Total Prostatectomy in Carcinoma of Prostate.—Castration and the estrogens have had a profound effect upon cancer of the prostate but there is little evidence that these measures are curative. A fair comparison between results of estrogen therapy and radical surgery is difficult, because antiandrogenic therapy has been applied to many stages of cancer, whereas total prostatectomy has been used only in cases in which the cancer was localized to small areas within the gland or the lesion appeared to be confined to the capsule of the gland. One hundred total prostatectomies performed at the Massachusetts General Hospital during the past 20 years for suspected cancer were reviewed. In spite of clinical evidence that cancer was present, no malignant disease existed in 21 of these patients. It should be recognized that early cancer of the prostate produces no symptoms. Symptoms present when the cancer is in an early stage usually are due to associated benign hypertrophy. Rectal examination gave correct diagnostic information in 73 of the 100 cases; in the remaining 27 it was misleading. Results of cytological examination of expressed prostatic secretion were confirmed in only about 40% of the cases. The most that can be said for needle biopsy is that when the specimen contains malignant cells, the patient does have cancer. Perineal biopsy and examination of frozen sections proved the most dependable and accurate diagnostic procedure. The operative technique of Young was generally used. The operative mortality was 5%. Of the 41 patients who underwent total prostatectomy before 1949, 26, or nearly two-thirds, were clinically free of disease at the end of three years. Fifteen of the 29 patients were alive and clinically free of disease five years after total prostatectomy. One was living with possible recurrence. Ten had died of cancer. Only one of the 15 five year survivors had subsequently died of cancer at the time of writing, and he died six years after operation. Total prostatectomy is gaining in favor. At the author's clinic nearly four times as many of these operations have been performed during the past 10 years as during the previous decade. He feels that the functional results justify the procedure.

Erythroplasia of Queyrat.—According to Merricks and Cottrell, Queyrat's erythroplasia usually involves the glans penis, but it may involve the coronal sulcus and the prepuce. It is of a chronic nature and is characterized by the persistence of slightly sensitive red plaques lightly infiltrating the mucous membranes. The majority of authors consider the cause unknown, although irritation, trauma with or without scar formation, inflammation, and syphilis have been postulated as predisposing factors. The disease is comparatively rare, the world literature reporting a total of 260 cases, to which these authors add a new case. A 79-year-old man complained of gradual tightening of the foreskin for the previous three years. During this time two paraphimotic episodes had occurred. Circumcision had been refused twice. At examination the foreskin could not be retracted and was becoming increasingly tender. Circumcision by the dorsal slit, lateral flap method was performed. Dense adhesions were encountered in freeing the prepuce, revealing an ulcerated glans. The glans was slow to heal. After 22 days the patient was discharged. During the next six months various ointments and chemicals failed to bring about complete healing. A biopsy taken at this time revealed Queyrat's erythroplasia and suggested malignant degeneration. Most authors consider this lesion precancerous or malignant, since degeneration into malignant epitheliomas occurs in 20 to 40% of the cases. In the case reported here the penis was amputated five months after the circumcision. The surgical specimen indicated a transitional cell carcinoma developing from Queyrat's erythroplasia. Amputation is the only adequate treatment for an advanced lesion.

Case of Queyrat's Erythroplasia.—A 39-year-old man had a small lesion on the left dorsal surface of the mucosal aspect of the prepuce for 10 years that had resisted local therapy. The lesion consisted of an oval, slightly elevated, orange-brown area 1.5 cm. long, with tiny, hard smooth papillary projections and multiple longitudinal fissures that burned and opened from time to time. The patient was circumcised well outside the pathological area, insuring eradication. The postoperative course was uneventful. The author stresses that Queyrat's erythroplasia is a serious disease and that therapy must be governed accordingly.

Louisiana State Medical Society Journal, New Orleans

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Evaluation of Newer Anticholinergics in Gastroenterology: Secretory, Motility, and Clinical Studies on Darstine, Pamine, and Reltine. G. McHardy, J. E. Bechtold and D. C. Browne.—p. 174.
Training for Practice of Surgery. J. D. Rives.—p. 181.
Polycythemia Vera with Gastroscopic Observation. D. N. Silverman and M. Dale.—p. 186.
Medical Slide Rule Especially Designed for Medical and Physiological Laboratories. J. T. Peters.—p. 188.
The Cross-Eyed Child: Etiologic Factors in His Defect. G. M. Haik and G. Ellis.—p. 191.
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Maine Medical Association Journal, Portland

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Military Surgeon, Washington, D. C.

112:395-472 (June) 1953. Partial Index

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Minnesota Medicine, St. Paul

36:433-568 (May) 1953

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*Brucellosis in Man: Study of 35 Cases Due to Brucella Abortus. W. H. Hall.—p. 460.
*Antibiotic Therapy in Bacterial Endocarditis: III. Penicillin O and Hypoallergenic Penicillins in Treatment of Subacute Bacterial Endocarditis. J. E. Geraci and P. R. Manning.—p. 466.
Look Backward. O. H. Wangensteen.—p. 471.
Study of Masses in Right Lower Quadrant of Abdomen. J. D. Mortensen and J. A. Bargen.—p. 481.
Analysis of Tuberculosis Case Registers in Minnesota. D. S. Fleming.—p. 486.
Obscure Fever of Hypernephroma. L. V. Kragh, H. H. Joffe, A. H. Wells and R. J. Eckman.—p. 488.

Brucellosis in Man.—The occurrence of Brucella abortus (brucellosis) is reported in 35 men between the ages of 21 and 59 years. There were 13 farmers who owned cows affected with Bang's disease, 15 packing plant employees, 1 veterinarian, and 6 who had no direct animal contacts, but 5 of these consumed unpasteurized milk or cheese and one often repaired radios covered with manure. Symptoms of the disease were multiple and varied. Clear-cut symptoms relating to the digestive or respiratory system were usually lacking. Physical abnormalities such as fever, lymphadenopathy, weight loss, and enlargement of the spleen and liver were few and inconclusive. Br. abortus was isolated from the blood of every patient. All had serum agglutinins ranging in titer from 1:160 to 1:5,120. The diagnosis rested principally on the epidemiological and clinical history, the agglutination test, and the blood culture. Only the last was decisive. Aureomycin in doses of 2 gm. daily for 7 to 21 days proved to be the most satisfactory therapeutic agent. There seemed to be no advantage in adding streptomycin or dihydrostreptomycin. Corticotropin (ACTH) controlled fever and toxicity but not bacteremia. Corticotropin may be a useful adjunct to chemotherapy in critically ill patients. Since human brucellosis can nearly always be traced to an animal source, control of the human disease depends primarily on the extermination of the animal reservoir. Pasteurization of milk and other dairy products is helpful but will not eliminate human brucellosis.

Antibiotic Therapy in Bacterial Endocarditis.—Two men and one woman with subacute bacterial endocarditis and histories of previous severe reactions to penicillin G were successfully treated with penicillin O in doses of 600,000 to 3,000,000 units per day. All three patients had mild sensitivity reactions to penicillin O, but the erythematous maculopapular rash, exfoliative reaction, and urticaria were not severe enough to warrant cessation of administration of this form of penicillin. Penicillin G was administered subsequently in gradually increasing doses, up to 10 million units per day in two of the authors' three patients, without any untoward reactions. Antihistaminic drugs were used in all three patients in an attempt to minimize the extent of reactions. The considerably milder nature of the reactions with penicillin O indicates that the latter form of penicillin was of benefit in the treatment of these patients. While it is evident that penicillin O is not the final answer to the problem of sensitivity to penicillin, it offers one more approach to the treatment of patients with subacute bacterial endocarditis who are sensitive to penicillin G and in whom use of penicillin is indicated.

New England Journal of Medicine, Boston

248:875-918 (May 21) 1953

Medicine and the Doctor in Work and Epigram. S. M. Jordan.—p. 875.
Use of Diamox, a Carbonic Anhydrase Inhibitor, as an Oral Diuretic in Patients with Congestive Heart Failure. C. K. Friedberg, R. Taymor, J. B. Minor and M. Halpern.—p. 883.
Massive Mesenteric Infarction Following Inferior Mesenteric-Artery Ligation in Resection of Colon for Carcinoma. R. S. Shaw and T. H. Green Jr.—p. 890.
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*Pancreaticoduodenal Cancer. W. V. McDermott Jr. and M. K. Bartlett.—p. 927.
Treatment of Respiratory Acidosis with N-Allylnormorphine (Nalline). M. J. Dulfano, F. X. Mack and M. S. Segal.—p. 931.
Hypercalcemia of Sarcoid Corrected with Cortisone. R. W. Phillips.—p. 934.
Medical Management of Arterial Hypertension. E. Meilman.—p. 936.

Pancreaticoduodenal Cancer.—The term pancreaticoduodenal cancer includes tumors of the head of the pancreas, the ampulla of Vater, the common bile duct, and the duodenum. All these cancers have in common the fact that a relatively standardized operation, pancreaticoduodenectomy, has been employed in their removal. This paper presents the results of radical resection of pancreaticoduodenal carcinoma. The authors compare the results of both curative and palliative surgical treatment in the 183 patients treated during the last decade (1941-1950) with the clinical course of the same types of carcinoma in 132 patients treated during the preceding decade (1931-1940). In the first decade only palliative surgery was employed regardless of the size of the tumor, duration of symptoms, or condition of the patient. The conclusion drawn from the comparison of these two groups is that little or nothing has been accomplished by pancreaticoduodenectomy if the results are viewed from the standpoint of over-all salvage. In some cases radical resection has been of palliative value and, in a still smaller group, has achieved five year survival and possibly permanent eradication of the disease. Therefore, even on the basis of these discouraging statistics, one should not advocate abandonment of pancreaticoduodenectomy, even in cancer of the head of the pancreas, which has the most unfavorable prognosis. Cancer of the duodenum seems to carry a relatively more favorable prognosis. The authors feel that recently described methods of resection of the portal vein and accompanying lymphatics may improve the results of radical surgical removal of these tumors.

Ohio State Medical Journal, Columbus

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Improving Rate of Cure in Cervical Carcinoma. A. C. Barnes and C. H. Hendricks.—p. 493.
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Large Twins—Case Report with Review of Other Cases. A. Woodburn. —p. 506.
Difficulties in Evaluation of Results of Psychotherapy and Implications for Referring Physicians. B. S. Matthews.—p. 507.

Oklahoma State Medical Assn. Journal, Oklahoma City

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46:141-166 (June) 1953

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Contraindications to Use of Banthine in Duodenal Ulcer. J. R. Colvert. —p. 149.

Physiological Reviews, Baltimore

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Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

83:1-194 (May) 1953. Partial Index

*Skim Milk and Experimental Rat Caries. F. J. McClure and J. E. Folk. —p. 21.
Steroid Compounds Resulting from Incubation of Cortisone with Surviving Liver Slices. A. B. Eisenstein.—p. 27.
Surface Fixation as Practical Method for Diagnosis of Brucellosis in Man and Animals. M. R. Castaneda.—p. 36.
Effect of Aureomycin in Rats with Chronic Alloxan Diabetes. A. M. Cohen and M. Rachmilewitz.—p. 50.
Effect of Somatotrophic Hormone and Streptomycin on Mice Exposed to Total Body X-Irradiation. L. E. Gordon, C. P. Miller and H. J. Hahne.—p. 85.
*Effects of Mineral Deficiencies on Amino Acid Utilization: Critical Role of Potassium and Phosphorus. D. V. Frost and H. R. Sandy.—p. 102.
Isolation and Purification of Plasma Thromboplastin: Its Physico-Chemical and Biologic Properties. E. W. Campbell and M. Stefanini.—p. 105.
Certain Physical Properties of Herpangina Strain and Pleurodynia Strain of Coxsackie Virus. S. S. Breese Jr. and A. Briefs.—p. 119.
Prevention of Blood Coagulation by Antibiotics in Vitro. A. I. Braude, P. Davey and J. Siemienski.—p. 160.
Hemagglutination with Certain Arthropod-Borne Viruses. J. Casals and L. V. Brown.—p. 170.
Failure of Rutin and Catechin to Affect Vascular Lesions of Experimental Hypertension or Hypersensitivity. J. L. Orbison and E. Peters.—p. 173.
Suppression of Normal Bactericidal Action of Rabbit Serum Following Whole Body X-Irradiation. S. Marcus and D. M. Donaldson.—p. 184.

Skim Milk Powders and Experimental Caries.—Previous studies on experimental rat caries suggested the possibility of a relation between heat-processed cereal foods and the etiology of dental caries. Continuing this type of study, the cariogenic role of heat-processed skim milk powders was investigated. Diets containing 35% of commercial skim milk powders prepared by the usual spray and roller processing and also given a subsequent heat treatment prior to feeding have been identified with the production of a specific type of surface caries in white rats. The extent and severity of the caries was significantly and consistently increased by heat treatment of these commercial skim milk powders. The results suggest that a cariogenic effect may be produced by heat treatment of dry skim milk powders. According to present evidence, this cariogenic effect has not been identified with the nutritive growth failures usually associated with heat or storage deterioration of milk proteins.

Effects of Mineral Deficiencies on Amino Acid Utilization.—Results of studies presented in this paper point to the critical role of potassium in amino acid utilization following protein depletion. Rats depleted only of protein failed completely, even when offered a complete source of amino acids, if at the same time potassium was withheld. If phosphorus was withheld during the repletion period, the rate of recovery was slower, but complete failure and deaths did not result as with potassium deprivation. Deprivation of sodium, calcium, or magnesium did not appear to have immediate limiting effects on the appetite of protein-depleted rats for a complete amino acid source or on their ability to recover lost weight.

Public Health Reports, Washington, D. C.

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Texas State Journal of Medicine, Fort Worth

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U. S. Armed Forces Med. J., Washington, D. C.

4:467-638 (April) 1953

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Deutsche medizinische Wochenschrift, Stuttgart

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•Treatment of Myasthenia Gravis: Clinical Experiences Concerning Treatment of Pseudoparalytic Myasthenia Gravis with Pyridostigmine. P. Seibert.—p. 805.
Development and More Recent Results of Allergy Theory. K. Hansen.—p. 807.
Neurotoxic Reaction to Penicillin. P. Bockel.—p. 810.

Treatment of Myasthenia Gravis.—Since 1948, a pyridine homologue of neostigmine (Pyridostigmine), was given a therapeutic trial in 23 patients with myasthenia gravis associated with pseudoparalysis. Results of animal experiments, which have not yet been published, showed that Pyridostigmine is five times less toxic than neostigmine, while the effect of the new preparation on the isolated intestine in vitro and in situ is only half that of neostigmine. Most of the author's patients had been treated previously with neostigmine, but there was only little improvement and the drug was not well tolerated. Result of treatment with Pyridostigmine showed that the effect of the drug on the muscles was prolonged, so that single doses of the drug could be given at longer intervals. The improvement of the functional capacity of the muscles was definitely superior to that obtained with neostigmine. The muscles of the trunk and of the extremities were most favorably affected by Pyridostigmine; the drug was least effective with respect to the external muscles of the eye. Undesirable side-effects were rare and mild. It was possible to administer large doses of the drug for prolonged periods. The dose required varied with the individual patient; while in some patients 4 tablets daily were sufficient, 12 tablets daily were required in other patients. Results with Pyridostigmine were definitely superior to those obtained with neostigmine as far as improvement of symptoms was concerned. A cure of the disease, however, could not be accomplished with Pyridostigmine.

Nordisk Medicin, Stockholm

49:599-632 (April 24) 1953. **Partial Index**

•Indications, Technique and Prognosis in Arthroplasty of Hip Joint. A. Westerborn.—p. 603.
Purulent Osteomyelitis of Spine: Seven Cases Treated with Penicillin. A. Hjelde and T. Hortemo.—p. 608.
Innervation of Heart and Operations on Nerves of Heart. M. Knudsen.—p. 610.
•Bundle Branch Block: Analysis of 100 Cases. B. G. Lundh.—p. 615.
Ruptures Involving Knee. R. Bromö.—p. 618.

Indications, Technique, and Prognosis in Arthroplasty of Hip Joint.—In Westerborn's opinion the results of arthroplasty of the hip joint by the Smith-Petersen technique justify the procedure, and the same is probably true of Judet's operation. In Sahlgren Hospital arthroplasty was performed in about 200 cases from 1947 to 1951. Follow-up examination revealed a high percentage of good late results of the Smith-Petersen operation; Judet's method with an acrylic substance has been in use only the last two years. Patients treated by Judet's operation have on the whole been less affected by the operation, and the immediate results have been satisfactory in most cases. After Smith-Petersen's cup plasty a number of patients have been able to resume occupations involving heavy physical work. Light work is advised for the first two years if possible. Reschooling for unskilled workers not too old to learn to do lighter work might be advisable. The main indications for arthroplasty of the hip joint are osteoarthritis, deforming arthritis of different origins, subluxations, and sequelae of loosening of epiphysis, Perthes disease, pseudoarthrosis, and necrosis of the head of the femur. Special indications for Judet's method include osteoarthritis with marked cystic degeneration of the head, necrosis of the head of the femur, pseudoarthroses, and certain fractures of the neck of the femur. Satisfactory results depend on thorough and careful technique and careful selection of patients; prolonged aftercare and training are fundamental, and the patient's active cooperation is essential. The results are mainly endangered by formation of new bone. The best results are attained in young and middle-aged patients who are not greatly overweight. Heavy and indolent persons are poorly adapted for the intervention. Evaluation, however, must be done in the individual case. Age plays a less important part than the general condition.

Bundle Branch Block.—From 1942 to 1951, 100 cases of bundle branch block, in 61 men and 39 women, were diagnosed. Four forms were seen: typical branch block of the right and left sides, Wilson block, and left block of homophasic type. Ninety of the cases represented left bundle branch block. The average age of the patients at the time of diagnosis was 73.1 years; 40 patients were between 70 and 80. Forty-six deaths occurred during the first year after diagnosis. The diagnosis had been made at least five years previously for 15 of the 19 patients still living; one of the three who were still living 10 or more years after the diagnosis was made has been observed for 18½ years. The principal etiological factors are hypertension and coronary occlusion, with resulting enlargement of the heart and fibrosis. Lundh says that, since electrocardiographic examinations are not a routine procedure, many cases of bundle branch block are not discovered. The prognosis follows that of the basic disease. Bundle branch block is not incompatible with long life and some physical activity, but such cases are rare.

Philippine Medical Association Journal, Manila

29:149-198 (April) 1953

Renal Function as Affected by Renal Infection. L. F. Torres Jr.—p. 149.
Diagnostic Problems in Ectopic Pregnancy. G. Tancinco-Yambao and P. M. Cajipe.—p. 154.
Preliminary Study on Use of Pooled Human Plasma (Liquid). R. Y. Atienza, O. Buensucesco and E. G. Bumanglag.—p. 159.
Laboratory Findings in Cases of Food Poisoning. A. P. de Roda.—p. 163.

Practitioner, London

170:441-544 (May) 1953. **Partial Index**

Specific Treatment of Ocular Infections. A. Sorsby.—p. 445.
Cortisone and ACTH in Ophthalmology. W. J. B. Riddell.—p. 452.
Retrolental Fibroplasia. J. H. Doggart.—p. 458.
Treatment of Cataract with Particular Reference to Acrylic Lenses. A. J. B. Goldsmith.—p. 465.
Corneal Grafting. A. M. Reid.—p. 471.
Toxic Amblyopia. G. I. Scott.—p. 480.

Presse Médicale, Paris

61:743-764 (May 23) 1953. **Partial Index**

•Attempts at Correction of Ectopic Aortic Stenosis. J. Patel and J. Facquet.—p. 743.
•Thromboembolic Disease in Patients with Mitral Involvement. R. Raynaud, J. R. d'Eshougues and M. Brochier.—p. 745.
Antibiotics and Synthesis of Vitamin B Complexes: "Chain Selection." J. Brisou.—p. 748.

Ectopic Stenosis of the Aorta.—Only 21 cases of subisthmic, ectopic stenoses of the aorta, either thoracic or abdominal, have hitherto been reported. Many of the earlier cases were diagnosed only at autopsy, but the anomaly can now be demonstrated by angiocardiography. Surgical correction has been attempted in six cases. In five cases the stenosis was in the lower thoracic aorta but above the diaphragm, while in the sixth case it involved the lower end of the abdominal aorta. Arterial grafts may be successfully used to replace the narrowed segment of the thoracic aorta, but the only method promising a cure in stenosis of the abdominal aorta is the creation of some kind of a shunt to carry the blood from the aorta past the stricture, thus counteracting hypertension. This method was used by the author in the first operation for ectopic aortic stenosis performed in Europe; the splenic artery was successfully anastomosed to the aorta and the postoperative course during the first three days was good. Then, however, the patient's general condition, which was complicated by heart failure and renal impairment, deteriorated, and on the fifth postoperative day she died. Early intervention, before cardiac disturbances associated with increasing hypertension or nephritis have had time to appear, is apparently essential; the procedure, which is at best an artifice, cannot be expected to succeed under any but favorable conditions.

Thromboembolic Disease in Patients with Mitral Involvement.—An impaired mitral valve is not only indicative of rheumatic fever, which may become active again at any time, and a site of predilection for secondary infection but is also an essential factor in the development of thromboembolic disease characterized by fever, repeated emboli, and symptoms of venous thrombosis. The fever is usually constant but moderate, with occasional peaks coinciding with embolic attacks, which may be either pulmonary or arterial. The classical picture of infarct presented in acute episodes of pulmonary embolism is unmistakable; at times, however, the condition may be clinically silent, or the symptoms may be limited to the recurrence of dyspnea, the abrupt appearance of right ventricular failure, or a hemorrhagic, inflammatory pleural effusion. Arterial embolism appears especially at the aortic bifurcation or in the lower limbs; less frequent than pulmonary embolism, it is usually a late manifestation and consequently carries a poor prognosis. Patients with mitral disease should be given routine examinations of the veins of the leg, especially those in the calf, where the earliest signs of thrombosis are found. The symptoms constituting this syndrome are due partly to the hemodynamic disturbances resulting from the valvular defect and partly to the hypercoagulant effect of the drugs used in treating the heart condition (digitalis and mercurial diuretics and even cortisone and corticotropin). The hypercoagulability of the blood may be seen on comparison of the prothrombin rate with the results of in vitro heparin tolerance tests. Transient increases in the alpha and gamma globulin fractions apparently coincide with periods of hepatic congestion and renewed activity of the thrombosing process respectively. Thromboembolic disease usually progresses by repeated embolic attacks, although it may be either acute or chronic. Anticoagulants should be given routinely to all patients in whom mitral affections are complicated by thromboembolic disease; discovery of hypercoagulability in itself constitutes an indication for their use. Patients with cardiac arrhythmias, especially those presenting the syndrome of enlarged left atrium, complete arrhythmia, and fever, should also be given antifibrillant medications such as dihydroquinidine. Excellent results have been obtained in patients treated by this method; embolic attacks ceased and the temperature was immediately reduced when sinus rhythm was restored.

Proceedings of Royal Society of Medicine, London

46:307-406 (May) 1953. **Partial Index**

Nerve Trunks as Pathways in Infection. G. P. Wright.—p. 319.
Recurrent Instability of Ankle—Method of Surgical Treatment D. L. Evans.—p. 343.
Use of Radioactive Phosphorus in Early Detection of Avascular Necrosis in Femoral Head in Fractured Neck of Femur. G. P. Arden and N. Veall.—p. 344.
Correlation Between Changes in Spinal Cord and Muscle Paralysis in Poliomyelitis: Preliminary Report. W. J. W. Sharrard.—p. 346.
Neo-Natal Volkmann's Syndrome. G. M. Bedbrook.—p. 349.
Types of Injury in Run-Over Lower Limbs. R. S. Henderson and L. M. Rouillard.—p. 350.
Tumours of Proximal Limb Bones and Hip Simulating Intervertebral Disc Lesions. J. C. McNeur.—p. 351.

Rivista d'Ostet. e Ginec. Pratica, Milan

35:113-168 (March) 1953. **Partial Index**

Combination of Barbiturates and Curare with Artificial Respiration in Cesarean Section. E. Seassaro.—p. 113.
*Bufo-Reaction with Blood and Urine for Biological Diagnosis of Pregnancy. A. De Marchi and G. Carrain.—p. 125.

Bufo Vulgaris Test for Diagnosis of Pregnancy.—At the obstetric and gynecological clinic of the University of Padua the biological test for pregnancy is made on the Bufo vulgaris toad. This toad reacts well to gonadotropins, is less expensive than the animals that are usually used for this purpose, and can be utilized again four to five days after the test. Another feature of this test is that blood serum rather than urine is utilized. The authors made a comparative study of the results with urine and with blood serum. More accurate, quicker, and more intense results were obtained with the blood serum, probably because of a constant and greater concentration of chorionic gonadotropic hormones in the serum. There were five falsely negative reactions when 2 cc. of the urine from 281 pregnant women were injected into the toads, whereas the reactions were always positive when 2 cc. of the blood serum from 508 pregnant women were injected. There was one falsely positive reaction when 2 cc. of the urine from 10 men were injected into the animals. The response was always negative when either blood serum or urine of nonpregnant women was injected. Thus, the results were accurate in 100% of the cases in which blood serum was used but in only 99.43% of the cases in which urine was used. Acidosis developed frequently after the injection of urine, and the animals died during the experiments. The blood serum, however, proved completely atoxic for the animals.

Schweizerische medizinische Wochenschrift, Basel

83:439-462 (May 9) 1953. **Partial Index**

Significance of Hematogenous or Inoculation Hepatitis in Medical Practice. E. A. Vischer.—p. 439.
Cardiac Catheterization in Chronic Constrictive Pericarditis. J.-L. Rivier, B. Baudraz and P. Desbaillets.—p. 445.
*Iodine Prophylaxis and Iodine Deficiency Concept: Study of Thyroid Conditions in Children of School Age in Several Swiss Villages. H. J. Wespi.—p. 452.

Iodine Prophylaxis and Iodine Deficiency.—In Wespi's experience, a reduced incidence of goiter is noted earlier in children than in adults. He studied the thyroid of school children in several villages of the Swiss cantons of Zurich and Aargau where examinations carried out in 1912 had shown the incidence of goiter was 55% in the Aargau villages and 47% in the Zurich villages. In 1952 the incidence of goiter had been decreased to 17% in the Aargau villages and to 1% in the Zurich villages. The decrease in the incidence of goiter in the Zurich canton is considered proof of the prophylactic effect of iodized salt, since considerably more iodized salt had been used for seasoning and cooking purposes in the canton of Zurich during the last 20 years than in the canton of Aargau. The reduced incidence of goiter was manifested not only by the disappearance of external evidence of an enlarged thyroid but also by decrease in the number of thyroids that could be palpated. The author agrees with Curtis and Fertman that the human optimal iodine requirement ranges between 100 and 200 mcg. The amount of iodine in the iodized salt used for seasoning and cooking purposes remains within the range of this "biological" dose. The fact that the goiter-preventing effect of the iodized salt is initiated with the biological dose and not only after administration of larger doses clearly demonstrates that the iodine prophylaxis results from prevention of iodine deficiency rather than from a pharmacological effect similar to that of quinine in malaria. Iodine deficiency may result from several causes in man. Primary deficiencies may be due to exogenous factors such as lack of iodine in soil, water, air, and food in regions endemic for goiter. Endogenous factors may be increased requirements in pregnancy and during growth, and climatic, hygienic, and nutritional influences. Secondary deficiencies or disturbances of utilization may be due to disturbances of thyroid hormone synthesis or substances such as fluorine and bromide and of thyroxin-like substances. Heredity may also play a part.

BOOK REVIEWS

1953 Medical Progress: A Review of Medical Advances during 1952. Morris Fishbein, M.D., editor. Cloth. $5. Pp. 301. Blakiston Company (division of Doubleday & Company, Inc.) 575 Madison Ave., New York 22, 1953.

This new publication is a yearbook reviewing recent progress in various branches of medicine and surgery. There are 16 chapters by 24 contributors dealing with special fields and a final chapter in which the editor evaluates important advances. Some chapters begin with a historical account of previous developments to aid the interpretation of current changes; others have only occasional reference to past achievements. Thus the book includes more than a review of the preceding year. There is some overlapping, particularly with regard to drugs, which are mentioned in the chapters dealing with the diseases in which they are employed as well as in a chapter devoted entirely to new and important drugs. All except this chapter and the first and last are followed by a bibliography. The general index could be improved by cross references to synonyms. From chapter to chapter there is no uniformity in drug terminology, which may be confusing to readers not thoroughly familiar with it. Thus hydralazine hydrochloride appears only under the chemical name 1-hydrazinophthalazine and the brand name Apresoline, for the base, in the chapter on arterial hypertension. The format and binding of this book are pleasing, and it should be helpful to practicing physicians for reviewing background and current progress in most of the branches of medicine and surgery.

Hoppe-Seyler Handbuch der physiologisch- und pathologisch-chemischen Analyse für Ärzte, Biologen und Chemiker. Herausgegeben von Konrad Lang und Emil Lehnartz, unter Mitarbeit von Günther Siebert. Band V: Unterschung der Organe Körperflüssigkeiten und Ausscheidungen. Bearbeitet von F. Bruns, et al. Tenth edition. Cloth. 168 marks; subscription price, 134.40 marks. Pp. 938, with 44 illustrations, Springer-Verlag, Reichpietschufer 20, (1) Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, 1953.

The fifth volume (which has preceded the others) of the 10th edition of this standard work deals with the analysis of normal and pathological body fluids, organs, and secretions. It should be welcomed, because the ninth edition is out of print as well as out-of-date, and the corresponding work in English (Peters and Van Slyke, "Quantitative Clinical Chemistry," Vol. 2, Methods) was published in 1932. In typical "Handbuch" fashion, the work is a collection of monographs by experts. Body fluids are covered by K. Hinsberg and his associates, organs by Cremer and Führ, milk by W. Diemair, tumors by C. Dittmar, and drugs and poisons by K. Gemeinhardt. Topics are treated briefly, and the reader is referred to the original literature. The articles cited are in a variety of journals published throughout the world. They date through 1952, although most articles appeared from 1930 to 1950. The material is organized logically. Directions for the assays are short but complete, and the German is simple. There are exhaustive author and subject indexes. Printing, paper and binding are of excellent quality. Clinical chemists, pathologists, and biochemists will find this work worth while.

Functional and Surgical Anatomy of the Hand. By Emanuel B. Kaplan, M.D., F.A.C.S., Assistant Professor of Anatomy, College of Physicians and Surgeons. Columbia University, New York City. Cloth. $10. Pp. 288, with 132 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1953.

It is proper that the hand be considered as an organ, and with this thought in mind the author presents its functional and surgical anatomy. The importance of the hand as a medium through which we are in contact with the surrounding world is stressed. Function is studied along the lines of comparative anatomy, particularly with that of the hands of anthropoid apes. Direct observations revealed that the differences are usually small and at times indistinguishable.

The comparative length of the thumb and the almost constant presence of the flexor pollicis longus is the most characteristic feature of the human hand. This combination permits better opposition and greater stability. The thenar eminence of the gorilla and chimpanzee are almost identical with that of the human hand. For the sake of study, the author has divided the hand artificially into three functional units: the thumb, the index and middle fingers, and the ring and fifth fingers. This is a rather novel and helpful approach. In depicting the thumb as an independent unit, he has incorporated the two phalanges, the first metacarpal, and the greater multangular and navicular bones.

A few minor faults do not seriously detract from this work. There is a lack of illustrations from living material, for example, Dupuytren's contracture shown in figure 120 is that of a shrunken hand of a cadaver. An attempt to make legends clear has resulted in use of too large a size of type. Imbalance between letter size and specimen is seen in figure 61, in which the specimen has been reduced to such a degree that the structures are difficult to identify. The use of color illustrations would have enhanced this text. The book can be recommended to anyone interested in anatomy, function, and surgery of the hand.

The Surgery of Pancreatic Neoplasms. By Rodney Smith, M.S., F.R.C.S., Surgeon, St. George's Hospital, London. Awarded by Council of Royal College of Surgeons the Jacksonian prize for 1951. Cloth. $7. Pp. 157, with 111 illustrations [Williams & Wilkins Company, Mount Royal and Guilford Ave., Baltimore 2]; E. & S. Livingstone, 16 and 17 Teviot Place, Edinburgh 1, 1953.

This concise and well-illustrated book covers most aspects of surgery for tumors of the pancreas. The first section deals with anatomy, physiology, history of pancreatic surgery, and classification of pancreatic neoplasms. The second section thoroughly develops the clinical and surgical aspects of carcinomas of the ampulla of Vater and of the head of the pancreas. The third section deals with less common but interesting and important neoplasms. The author has carefully evaluated the problems connected with diagnosis and surgical treatment. This book will prove valuable reading for surgeons.

Progress in Clinical Medicine. By various authors. Edited by Raymond Daley, M.A., M.D., M.R.C.P., and Henry Miller, M.D., M.R.C.P., D.P.M. Second edition. Cloth. $6.50. Pp. 426, with 43 illustrations. J. & A. Churchill, Ltd., 104 Gloucester Place, Portman Sq., London W.1; [John de Graff, Inc., 64 W. 23rd St., New York 10], 1952.

In the second edition of this book the editors have omitted many of the previous subjects, which were particularly of military interest, and have added sections on cerebral angiography, electrolyte and water balance, cortisone and corticotropin, hypersplenism, toxoplasmosis, electrocardiography, parkinsonism, and the newer antibiotics. In discussing the many aspects and problems of internal medicine no attempt is made to cover complete systems. The material covered should be of general interest to the specialist in internal medicine as well as to the general practitioner or medical student who is at the intern or residency level. The subjects are as well covered as can be expected in a book of this size. There are 43 good illustrations. The style of writing is generally good, and the simplicity of most of the articles makes the volume extremely readable. On the whole, the book can be recommended.

These book reviews have been prepared by competent authorities but do not represent the opinions of any official bodies unless specifically so stated.

QUERIES AND MINOR NOTES

ODOR OF SWIMMING POOL WATER

To the Editor:—*The source of our swimming pool water is a natural hot water well, which provides water of about 87 F with a definite odor of hydrogen sulfide. A chemical analysis of this water revealed manganese, 0, sulfides, 0.1 ppm, nitrate, 0, phosphate as PO_4, 0.14 ppm, silica, 28 ppm, and ammonia as N, 1.0 ppm. It has been discovered that the chlorine demand of this water is 2.2 ppm, but 16 ppm is required to produce a free chlorine residual without chloramine. It is the opinion of a medical committee that this water may contain chemicals that are injurious to the mucous membranes of the nose, throat, and eyes. Inasmuch as we have considerable difficulty with rhinopharyngitis and conjunctivitis in our swimmers, we would like your opinion on the chemical content of the water.*

Warren B. Ross, M.D., Nampa, Idaho

Answer.—The key to this difficulty may reside in the hydrogen sulfide content of the water, which possibly may be appreciably higher than the value reported. This gas potentially is an eye irritant even in trace concentrations. Hydrogen sulfide combines with the added chlorine and thus in part accounts for the high chlorine requirements. This reaction eventuates in a lowered pH, and this acidity may contribute to the eye irritation. The condition might be improved by extensive aeration of the water prior to introduction into the pool. This step will contribute both to removal of the hydrogen sulfide and to acid reduction. From any swimming pool and particularly under circumstances of low temperature, conjunctivitis and nasopharyngitis can arise and not always from either bacterial or chemical contamination. In part this may be related to excessive heat losses from the body. Chiefly this situation is one for the appraisal of the skilled sanitary engineer.

TREATMENT FOR CORAL SNAKE BITE

To the Editor:—*Please outline treatment for the bite of the coral snake (Micrurus).*

Jack Mickley, M.D., Hollywood, Fla.

Answer.—In considering treatment for bites of the coral snake, it must be borne in mind that this reptile is the only representative in America of the family of snakes known as Micruridae, in contrast to the large number in this country that belong to the family Viperidae, which includes rattlesnakes, copperheads, and moccasins. The principal constituent of the venom of Micruridae is a neurotoxin that kills primarily through paralysis of the respiratory center in the medulla. The best known of these venoms is cobra venom, which is now employed therapeutically to some extent. Vipers, on the other hand, produce a venom that is rich in hemotoxins or blood poisons, of which some are hemorrhagins, others are thrombins, which promote blood clotting, and still others are cytotoxic in character. The rational treatment for coral snake bite would of course be the administration of a suitable antivenin, but this consultant is not certain whether such an antivenin is available. If not, the following procedure should be followed: A tourniquet is applied locally to impede further absorption of the venom through the veins and lymphatic vessels. At the same time, with local procaine anesthesia, multiple incisions are made with a razor blade, as much poison as possible is removed by suction, and the wound is irrigated with sodium chloride or potassium permanganate solution. Under no circumstances should permanganate be injected. The tourniquet should be released every 30 minutes to prevent development of gangrene. Mild sedatives, such as phenobarbital or small doses of alcohol, may be administered to relieve pain, and psychotherapy is useful to prevent the patient's becoming panicky. It is not wise to employ morphine or other powerful narcotics, because they depress the respiratory center, which is the most vulnerable organ in coral snake venom poisoning. On the contrary, respiratory stimulants, such as hot coffee or tea, caffeine and sodium benzoate, or pentylenetetrazol (Metrazol), may be administered in severe cases. Artificial respiration may be indicated until the venom is at least partially destroyed in the body. Heart stimulants and other analeptics are administered as necessary. If the occurrence of systemic infection from the bite is possible, cautious use of sulfonamide or antibiotics must be considered. Recent reports of the possible usefulness of antihistaminics and cortisone or corticotropin (ACTH) are not yet convincing but should be borne in mind.

LARVA IN INTESTINAL TRACT

To the Editor:—*For some time, a patient has been passing fly-like organisms resembling the drone bee with a long tail. The organism has been described by a pathologist and an entomologist as Tubifera tenax. The condition is apparently rare. If you have any information relative to treatment, we would be pleased to receive it.*

H. F. Hooker, M.D., Danville, Ill.

Answer.—Tubifera tenax is probably the preferred name for a fly of the "rat-tailed larva" group that has been often referred to as Eristalis tenax and occasionally as Eristalomyia tenax. The larva of this fly is not an obligate parasite. It is usually found in water contaminated by sewage and other foul organic matter. The larva, which is extremely resistant to adverse conditions, is apparently able to develop in, and traverse, the gastrointestinal tract. There are on record probably more than 30 cases of human myiasis caused by the larvae of this fly or by the larvae of related species. There are also a number of cases reported in domestic animals.

Treatment for the removal of these larvae has been varied. Among the treatments recorded are jalap, aloe, mild mercurous chloride (calomel), rhubarb, Creolin (a mixture of coal tar phenols and oils) and hot water, santonin, mercury, intestinal antiseptics, and hexylresorcinol. Swartzwelder and Cali (*Am. J. Trop. Med.* **22:**159-163, 1942) mentioned the last-named drug as being given to a child 6 years old, after she had coughed up an insect larva and had passed a small worm after an enema. The dose for the child was three Caprokol (hexylresorcinol) tablets of 0.2 gm. each. It was stated that within a few hours after treatment seven rat-tailed maggots were passed and that some of the larvae were visibly affected by the treatment.

NASAL MEDICATION IN CORONARY PATIENTS

To the Editor:—*Most of the antibiotics for local nasal use embody a vasoconstrictor. Which one is the least harmful medication in cases of coronary sclerosis?*

Max J. Schroeder, M.D., New York.

Answer.—The local use of antibiotics for the control of rhinitis, in the presence of coronary sclerosis, is rarely contraindicated. Even the solutions containing vasoconstrictors in the dilution ordinarily encountered are harmless. Only in extreme instances of coexisting coronary sclerosis and severe hypertension are vasoconstrictors to be used with caution. Even then it is questionable whether such medication elevates blood pressure appreciably or has any adverse influence on the coronary vessels.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

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MEDICOLEGAL EXPERIENCES UNDER THE OHIO CORONER'S SYSTEM

Kurt E. Landé, M.D.
and
Garrett Boone, M.D., Hamilton, Ohio

On Oct. 12, 1945, recodification of the laws concerning the duties of the county coroner in Ohio was made effective. This final step in a long-drawn-out legislative process aimed at modernization did away with many antiquated and outdated laws and replaced them with rules reflecting more advanced concepts of investigation of the cause of death under doubtful circumstances. While still retaining the traditional office and name of coroner, the revised Ohio code allows the development of a coroner's system that resembles the medical examiner's system enacted in the last few years in Maryland, Virginia, and Georgia. These were modeled after the medical examiner's offices that have functioned successfully in Massachusetts, New York City, and Essex County, N. J., for a long time.

In Ohio, the coroner must be a physician. He receives an annual salary based on the population figure of the county in which he serves, and he is elected to office either as a true party candidate or as an unopposed, nonpolitical candidate. Each county coroner acts independently since there is no central agency, as in Baltimore, that coordinates and scrutinizes reports and that supervises the county medical examiners.[1]

Under sections 28855-5 and 28855-6 of the Ohio code, the duties of the coroner have been expanded and strengthened by the provision that "when a person shall die as a result of criminal or other violent means, or by casualty or by suicide, or suddenly when in apparent good health, or in any suspicious or unusual manner, the physician called in attendance or any other person finding the body or acquiring first knowledge of such death, shall immediately notify the office of the coroner and submit any information in his possession which may be requested by the coroner. . . . In such cases, if a request for cremation is made, the funeral director called in attendance, shall notify the coroner immediately. The coroner or his deputy, if he deems it necessary, shall take care of the body and may authorize an autopsy. The coroner may conduct an inquiry, subpoena witnesses etc. and shall make a report to the county prosecutor. The coroner or the county prosecutor may order a body disinterred for exhumation." The law permits the establishment of suitable offices, laboratories, and equipment in the county for the use of the coroner, and it allows the coroner to appoint and to fix the salaries of assistant coroners, one to be designated chief deputy coroner, and pathologists and other personnel to assist him in his work. It allows coroner's laboratories to perform examinations for coroners in counties that do not have laboratory facilities.

COUNTY SURVEYED

The survey of the practical working of the new coroner's laws was undertaken in an Ohio county with a population of 147,203 according to the 1950 census. Two industrial cities, Hamilton and Middletown, contribute 60,000 and 35,000 members of the population respectively. Rich farmland, a number of smaller communities, and one college town, Oxford, determine the semirural character of the county. About 3.5% of the population are Negroes who live in the two cities and in the college town. The turnover of population is considerable, because of constant interchange of the common labor force between southern Ohio and the hills of Kentucky and because of the usual transfer of personnel in industry.

The new coroner replaced an elderly physician who had been in office, under the old, antiquated system, for about 20 years. After the new coroner had been in office for some time, the effect of the new code could be evaluated, and it was only after his election that sufficient records were available to permit valid conclusions on the extent of work accomplished.

RESULTS OF SURVEY

Since the center of the county's population is in and around Hamilton, the greater number of postmortem examinations were handled in that city. The two Hamilton hospitals have a combined bed capacity of 415 as compared with a capacity of 148 in the Middletown hospital; therefore, proportionally greater numbers of patients who became coroner's cases were treated in Hamilton than in the neighboring city (table 1). The total number of deaths in the county amounted to 1,405 in 1951 and 1,440 in 1952. The total number of cases investigated by the coroner, 305 in 1951 and 334 in 1952, are about 21 to 22% of all the deaths in the county; this is a desirable optimum of investigatory activity. About every fifth death was reported to the coroner and investigated. In the majority of instances, a telephone call to the attending physician or to the hospital authority in whose institution the patient died, either from accident or shortly after admission, was sufficient to preclude any further steps on the coroner's part. Nevertheless, the number of cases, not quite one per day, shows that, in a county of about 150,000 inhabitants, the coroner's office has ceased being a sinecure; even if a case is closed after only cursory investigation, a complete record must be made and kept on file.

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[1] Landé, K. E., and Wells, S. R.: Experiences Under the Medical Examiner System, J. A. M. A. 125:897-900 (July 29) 1944.

TABLE 1.—*Coroner's Cases in Butler County, Ohio, from 1948 to 1952*

Year	Fatal Car and Railroad Accidents	Other Fatal Accidents	Suicides	Homicides	Death from Natural Causes	Rape and Abortion	Poison	Cases Investigated	Autopsies: Hamilton	Autopsies: Middletown	Autopsies: Total
1948	37	23	6	3	140	..	1	210	18	..	18
1949	40	25	12	5	184	..	..	266	24	5	29
1950	60	41	6	3	218	..	3	331	25	17	42
1951	49	34	16	2	203	..	1	305	39	12	51
1952	49	50	17	3	215	..	..	334	34	16	50
Total	235	173	57	16	960	..	5	1,446	140	50	190

The five year total of 190 autopsies amounts to 13.1% of the coroner's cases. In 1951 and 1952 alone, the percentage was 15.7. Several factors have influenced the gradual increase of postmortem examinations. First, only since 1949 has a part-time pathologist been available at the Middletown hospital, and only since early 1950 has a full-time pathologist been available. Secondly, Mercy Hospital in Hamilton has been approved by the American Medical Association for intern and resident training and has, therefore, been more interested in raising its autopsy rate. For that reason, more coroner's cases have been autopsied at that hospital than the one in Middletown that does not employ medical house officers (table 2). In Hamilton, physicians have asked for and the coroner has consented to authorizations for autopsy in cases of traffic accidents, sudden death from natural causes, and other pertinent causes that perhaps would not have been subjected to examination if the hospital and house staff had not been interested. Furthermore, starting on Jan. 1, 1950, the coroner's pathologists in Middletown and Hamilton have been retained on a salary. This gives the coroner freedom to order autopsies whenever he considers them necessary, whereas formerly it was difficult to elicit payment from county authorities for the autopsies, even at the very low statutory Ohio rate of $20 per case (including written report and microscopic examination). Formerly the majority of coroner's autopsies requested for patients dying in one of the hospitals were not charged for in order to avoid any potential argument on the part of the county commissioners as to the need for such postmortem examination. It was felt by both the coroner and the pathologist that the development of an efficient coroner's service is a long-range program and that only gradual education of the public and its political representatives would and could lead to steady improvement.

TABLE 2.—*Coroner's Autopsies in Butler County, Ohio, from 1948 to 1952*

Year	Fatal Car and Railroad Accidents		Other Fatal Accidents		Suicides		Homicides		Death from Natural Causes		Rape, Abortions		Poisonings		Autopsies		
	H*	M†	H	M	H	M	H	M	H	M	H	M	H	M	H	M	Total
1948	3	..	1	..	2	..	1	..	11	..	..	..	..	..	18	..	18
1949	4	..	1	..	2	..	1	..	16	5	..	..	..	..	24	5	29
1950	2	1	1	1	1	..	1	..	20	15	..	..	..	..	25	17	42
1951	6	4	4	2	1	..	1	1	27	5	..	..	..	..	39	12	51
1952	4	2	3	..	..	2	2	..	25	12	..	..	..	..	34	16	50
Total	19	7	10	3	6	2	6	1	99	37	..	..	..	..	140	50	190

* Hamilton.
† Middletown.

From this point of view, the annual salary of $500 for the Middletown and $700 for the Hamilton pathologist was a step in the desired direction. Even so, one cannot claim that the money spent by the county for coroner's autopsies, listed in the county budget under the heading county morgue, represents a fair compensation for time and work involved in more than 30 autopsies per year performed by the Hamilton pathologist and about 15 by the Middletown pathologist. In 1952, the coroner received $2,233.05 for his own services and $1,466.08 for clerical and other expenses. Since the coroner's tasks often necessitate prolonged absence from his medical practice, it is not surprising that smaller counties in Ohio have had difficulty finding a physician willing to assume the duties of the coroner's office. It is not only the low pay offered that makes a physician think twice before he puts public interest before his own personal advantage but also the knowledge that for less vital but politically more important county offices rather lavish sums are available. This is especially true when one learns that in 1952, an election year, the county budget allowed only a total of $4,882.41, including the pathologists' salaries, to the coroner's office but $14,571.91 to the county dog catcher. If, under the present set-up, public-minded physicians take on the coroner's duties in the smaller counties, it is mainly with the realization that the slow process of educating the public to the practical importance of a well-functioning, up-to-date coroner's office has to be undertaken by some member of the medical profession. For years to come, those engaged in coroner's work will perform their task spurred more by their genuine interest in this fascinating field than by the opportunity to increase their personal income easily and conveniently.

CAUSES OF DEATH INVESTIGATED

The preponderance of coroner's cases were sudden deaths from natural causes. This is also the group in which the largest number of autopsies were performed; this incidence is similar to that of the whole country. Heart disease, mainly the direct or indirect sequelae of coronary arteriosclerosis, is by the far the leading cause of sudden, unexpected death. Degenerative diseases of the vascular system run a close second, with cerebral hemorrhages and ruptured congenital, cerebral, or arteriosclerotic aortic aneurysms frequently represented. Vascular accidents are so often brought to the coroner's attention because of their involvement in traumatic events at home, at work, or on the street. If an elderly person falls and contracts a fracture, quite often questions are raised concerning insurance, compensation, eventual liability of a third party, or justified or unjustified accusations of wilful or unintended neglect. Problems of this kind make an autopsy desirable, even if death occurs many months after the real or supposed accident took place.

Fatal hemorrhages of clinically unknown origin are another category encountered quite often; rupture of esophageal varices, hemorrhages from silent peptic or duodenal ulcers, and hemoptysis from unrecognized or neglected tuberculous cavities have been found. Sudden death from tuberculosis of any kind is not the only indication of the epidemiological importance of coroner's autopsies. Autopsies of children who died unexpectedly after attending a social function revealed pathological changes typical of Waterhouse-Friderichsen syndrome (fulminating meningococcic meningitis). Prompt prevention of its spread among contacts was initiated on the basis of the autopsy findings. The question of rabies came up twice, but the clinical suspicion was not confirmed anatomically. An upper respiratory infection that caused the death of two young brothers and clinically resembled malignant diphtheria but that was proved bacteriologically to have been caused by highly virulent hemolytic staphylococci prompted an extensive investigation by the county health authorities.

The new code fortunately provides that the coroner may proceed with postmortem examination in the instance of sudden death from suspected communicable or infectious diseases even if the family of the victim denies permission. Occasionally, the reluctance of the family to concede the value of an autopsy changes when the sudden death of one of its members is explained to eliminate any guilt feelings. This was dramatically demonstrated when it was proved that a 5-year-old boy, who died shortly after his father had given him a mild spanking, had suffocated from a malignant thymoma filling the whole mediastinum and compressing the trachea and esophagus almost completely.

Deaths caused by anesthesia are very tragic particularly when they occur in cases of elective or minor surgery. The coroner orders autopsies in most of these instances in order to rule out any other cause of sudden death and to establish anatomic facts in case of later unfounded accusations. In the case of a young woman who died before a thyroidectomy was begun, autopsy revealed unsuspected bilateral, huge adrenal cortical carcinomas. It is in cases of this kind that the Ohio code is unique in granting the coroner the undisputed right to have an autopsy performed.

Accidents are the next most important group of coroner's cases, with automobile accidents the commonest. Railroad accidents, however, are, in this county, far from rare and are frequently the result of unprotected railroad crossings at which drivers or pedestrians either half-asleep and/or intoxicated are caught by a train. Industrial accidents are encountered in the usual frequency, in spite of existing safety programs in the steel and paper mills, machine tool factories, and foundries. In the accident group, farm accidents, caused by machinery, livestock, or a combination of both, comprise a significant number. Among the industrial accidents, a few cases of poisoning have occurred; persons overcome by poisonous fumes while cleaning boilers have fallen into vats filled with concentrated acids or alkali solutions. In one case, an alcoholic derelict was exposed, while in temporary jail custody, to great quantities of delousing fluid. The police did not realize that it was dangerous for this man, who happened to suffer from a chronic, weeping generalized eczema, to absorb the fluid. Death resulting from accidental ingestion of carbon tetrachloride mistaken by a woman for a headache medicament while she was mildly intoxicated was misinterpreted clinically as happens so often when alcoholism is the well-known and obviously leading symptom. Two excellent discussions of accidental poisoning have been published recently.[2]

Although true homicides have been infrequent, suicides are fairly common; among them have been several homicide-suicide situations. Too many sleeping pills, gunshot wounds, and carbon monoxide are employed more often than hanging. Rape and abortion cases with fatal outcome have not numbered in the coroner's material since 1948. One case of death caused by septic abortion came to autopsy in 1945 and one in 1947. This infrequency does not mean that the county does not have its full quota of spontaneous and criminally induced abortions, but that those who start or perform them are apparently familiar with a certain degree of aseptic technique or have been lucky so far.

THOSE INTERESTED IN AUTOPSY RESULTS

The postmortem examination of many of the coroner's cases is very often of considerable interest to insurance carriers. For instance, a death originally reported to the coroner as accidental was conclusively proved to have been suicidal through the coroner's persistent investigative efforts. In spite of the obvious advantages to insurance carriers from an ever-expanding autopsy program, encouragement from that group has been singularly lacking. One often has the feeling that much future grief and litigation could be averted if the respective insurance carriers would show as much interest in having autopsies performed routinely as they demonstrate when they find it particularly advantageous to utilize the coroner's findings. One sometimes wonders whether there could not be devised a procedure in which, in cases involving considerable amounts of money, those obviously profiting by the coroner's efforts could be made to share the expenses with the county for the coroner's work. Even without this financial consideration, one of the educational goals for which the coroner and his associates are striving is to change the passive attitude of these insurance companies to a more active, cooperative interest.

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[2] Moore, M.; Alexander, L., and Ipsen, J., Jr.: Death from Poisoning: Massachusetts, 1938-1948, New England J. Med. **246**: 46-52 (Jan. 10) 1952. Accidental Poisoning, editorial, ibid. **248**: 564-565 (March 26) 1953.

Without the close cooperation of the city police department, the sheriff's office, and the prosecuting attorney and his staff, no coroner could ever hope to perform useful work. They are by the same token the very groups who are cognizant of the help they receive from the coroner. In Butler County, as almost everywhere, these agencies and their representatives cooperate closely and to full mutual satisfaction with the coroner and his associates. A good deal of tact and diplomacy is needed, however, to prevent the coroner's being prevailed on and becoming the honorary but nevertheless very busy police and fire department attendant to patients who are alive and who have only a long-range relationship to the function of the coroner's office as outlined by law.

An alert physician serving as coroner and a pathologist serving under him, both of whom are well versed in forensic procedures, are indispensable in modern crime detection. Even in Butler County, enough cases occur in which only a thorough autopsy provides the basis for the further work of the police force that culminates in apprehension of a suspect and a later court trial. Or, in reverse, a postmortem examination may disclose, as in one Butler County case not long ago, that a woman beaten by her common-law husband did not die from the blows that were relatively minor in force but from a preexisting, extensive brain tumor. This finding closed the case as far as the law enforcement agencies were concerned and saved the county much unnecessary expense. Similarly in noncriminal cases only thorough and expert investigation can allow the decision of whether a man who, as a house painter, fell from a high scaffolding was the victim of a coronary thrombosis or whether a foundry worker who died at work suffered from an organic disease caused or aggravated by his occupation. Cases like these, which could be multiplied by numerous other random examples, belong in the coroner's field as much as do acts of pure violence, the investigation of which was the original basis for the task delegated to the coroner.

SUMMARY AND CONCLUSIONS

At present, as our five year survey shows, the coroner's office has the inherent opportunity for steady growth and organic expansion. For unusual circumstances like the eventual need for toxicological examination, laboratories such as those of the Kettering Institute in Cincinnati are available for Butler and other neighboring counties. Establishment of a centralized coroner's or medical examiner's system, similar to that of Maryland or Virginia, would appear justified and necessary only for those counties in which the service of a coroner's pathologist are not available. Since one of the main goals, in addition to steady and expanding routine work, is education of the general public on the local and county level as to the important role a well-functioning coroner's office plays in their welfare, it seems that for now the present Ohio system fulfills the existing needs and serves its purposes well.

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DIAGNOSTIC SIGNIFICANCE OF BLOOD SUGAR FINDINGS

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and
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During the past few years the American Diabetes Association has sponsored a Diabetes Detection Week throughout the entire country. Many screening tests have been devised for finding the unknown diabetic, and a tremendous amount of work has been done on diabetes detection. The late Dr. James Edgar Paullin, in 1949, challenged the Georgia Department of Public Health to incorporate a test for abnormal carbohydrate metabolism in their Voluntary Multiphasic Health Test program, which included a chest roentgenogram, a test for anemia, and a serologic test for syphilis. The Anthrone method of blood sugar analysis was developed,[1] and, in 1950, the rapid screening of large numbers of patients was begun.[2]

Since April, 1950, about 600,000 persons in the state of Georgia have voluntarily submitted to this screening procedure for abnormal carbohydrate metabolism. A report on almost 250,000 of those screened during the past 18 months was made at a recent meeting.[3] Each person tested was classified as having an abnormal (over 160 mg. per 100 cc. in two hours or over 160 mg. per 100 cc. at 45 minutes, but below 160 at two hours) or a normal (below 160 mg. per 100 cc. both at 45 minutes and at two hours) blood sugar metabolism on the basis of an initial screening test and a modified glucose tolerance test. In the last group reported, 4,524, or 1.87%, were referred to their private physicians as cases of abnormal carbohydrate metabolism. To obtain a clinical follow-up on all referred persons, a mimeographed sheet (reproduced below) containing a check list of known causes of

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Read before the Section on Internal Medicine at the 102nd Annual Session of the American Medical Association, New York, June 2, 1953.

[1] Fetz, R. H., and Petrie, L. M.: Anthrone Blood Sugar Method, Adapted to Diabetes Case Finding in Multiple Screening Program, Pub. Health Rep. **65**: 1709-1718 (Dec. 22) 1950.

[2] Petrie, L. M.; Bowdin, C. D., and McLoughlin, C. J.: Voluntary Multiple Health Tests, J. A. M. A. **148**: 1022-1024 (March 22) 1952. McLoughlin, C. J.; Petrie, L. M., and Fetz, R. H.: Diabetes Detection in Georgia, J. M. A. Georgia **40**: 285-287 (July) 1951.

[3] Petrie, L. M.; McLoughlin, C. J., and Hodgins, T. E.: Carbohydrate Metabolism in General Population of Georgia, read before the American College of Physicians, Atlantic City, N. J., April 15, 1953.

hyperglycemia was forwarded, with results of the screening tests, to the person's private physician. He was requested to mail the sheet back to the health department after making his diagnosis as to the probable cause of the abnormal carbohydrate metabolism.

Analysis of our reports (see figure) of these persons with abnormal carbohydrate metabolism as to age, sex, and race shows that prevalence of abnormal sugar metabolism increases markedly with the advance in age, with the highest incidence of 8.98% in the group of Negro women in the seventh decade. Note that there is a definitely higher percentage of abnormal carbohydrate metabolism in the Negro females and a lower prevalence in the Negro males. Over 70 years of age the incidence in Negroes decreases slightly, but in the white population there is a very definite increase.

Diagnostic Check List

	Date	Blood	Urine
Primary test	....	....	....
45 Min. Tolerance Test	....	....	....
2 Hour Tolerance Test	....	....	....

Serial Number................

For the Doctor Only

Please check below your diagnosis to explain the abnormal sugar metabolism of the patient whose serial number in the health survey is indicated above and return to the health department. A franked envelope is attached. Please double check the factor which you feel is responsible for the abnormal sugar metabolism. Place single check beside other factors which *coexist*.

( ) Diabetes Mellitus
( ) Hyperpituitarism
( ) Pregnancy
( ) Gall Bladder Disease
( ) Prolonged Bed Rest
( ) Arteriosclerosis
( ) Chronic Arthritis
( ) Apoplexy
( ) Hepatic Cirrhosis
( ) Low Carbohydrate Diet
( ) Hyperthyroidism
( ) Acromegaly
( ) Ulcerative Colitis
( ) Old Age
( ) Overweight

( ) Previous Repeated Insulin Administration in a Non-Diabetic Individual
( ) Other Specify

Please indicate laboratory procedures which you employed:

( ) Glucose Tolerance Test
( ) Post-Prandial Blood Test
( ) Post-Prandial Urine Test
( ) Fasting Blood Test
( ) Fasting Urine Test
( ) Other Specify

If your findings do not confirm any abnormality of sugar metabolism, please explain.

Date............... Signature......................................, M.D.

Address......................................

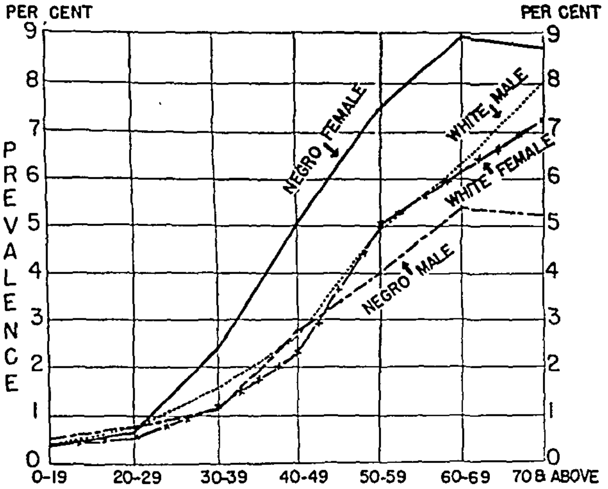
Revised Sept. 1951

Ga. Dept. of Public Health in cooperation with U.S.P.H.S.

There were 241,451 persons examined of whom 4,524, or 1.87%, showed some abnormality of carbohydrate metabolism and were referred to the physicians of their choice. In this group, 415, or 9%, gave a history of having known of a diabetic condition prior to taking the tests. This left 4,109 patients referred to physicians for further diagnosis. Of these, follow-up reports were submitted for 1,981, or 48.2%. We were interested in discovering what percentage of these patients referred would be diagnosed as having true cases of diabetes. Secondarily, we were interested in the various methods used by practicing physicians to determine the presence of diabetes. As we will show, a great deal of missionary work is yet to be done in training the average physician to make a diagnosis of diabetes mellitus.

Of the 913 patients classified by us as having borderline cases, 186, or 20.4%, were diagnosed by their physicians are being "new" diabetics. We classified 1,068 as having definitely abnormal tolerance curves by our screening tests, and 629, or 59%, were diagnosed as "new" diabetics. This gives a total of 815 new diabetics among the 1,981 reported. As will be demonstrated, however, there are, in our opinion, many cases of diabetes among the remaining 1,166 so-called "nondiabetics."

Among the laboratory procedures employed by physicians to substantiate or deny the presence of diabetes were (table 1) urinalyses, fasting blood sugar tests, postprandial blood sugar tests, glucose tolerance tests, including Exton-Rose tests, and other tests such as that for basal metabolism. The Folin-Wu method was used almost universally for blood sugar determination. No intravenous glucose tolerance tests or insulin tolerance tests were reported. Here, particularly, we would like to call attention to the fact that simple urinalysis or a fasting blood sugar test was used to substantiate or deny the presence of diabetes in more than 76% of all cases. In fact, more than 82% of the referred persons classified as nondiabetic by physicians were assured of the absence of this disease on the basis of no laboratory work at all, or nothing more reliable than a urinalysis or a fasting blood sugar test. It should be remembered that some of these referred patients had more than 400 mg. of blood sugar per 100 cc. on our screening or glucose tolerance tests.



Prevalence of abnormal sugar metabolism in 10 year age groups.

TABLE 1.—*Laboratory Procedures Reported by Physicians*

Total 1,981	"New" Diabetic 815 (41.2%)	"Nondiabetic" 1,166 (58.8%)
Physician's Primary Laboratory Procedure:	No. of Patients "New" Diabetic	No. of Patients "Nondiabetic"
Urinalysis	419 (51.5%)	698 (60.0%)
Fasting blood sugar...............	210 (25.8%)	182 (15.6%)
Postprandial blood sugar..........	19 (2.3%)	21 (1.8%)
Glucose tolerance	161 (19.8%)	191 (16.4%)
Other *	6 (0.7%)	74 (6.3%)

* Usually history and physical. Three patients had basal metabolism determinations.

According to the check lists submitted by physicians (table 2), among the 815 patients given diagnoses of diabetes, 178 were overweight, 104 had associated arteriosclerosis, and 75 were in the old age group (which coincides rather closely with the percentage of diabetics previously reported [3] in the older age groups). Among these 815 new diabetics, 274 had one or more diagnoses other than diabetes checked by their physicians.

Among the 1,166 persons classified by physicians as having a condition other than diabetes as a primary reason for the abnormal blood sugar metabolism, 296 were overweight, 184 had arteriosclerosis, 108 were in the older age group, and 115 had their abnormal survey test explained as being due to a low carbohydrate diet. In this nondiabetic group of 1,166 cases, 25% had three or more diagnoses; 72 patients were checked as having five or more concomitant diseases and 125 as having other diseases, such as hypothyroidism, nephritis, chronic constipation, and low renal threshold, or as having a condition due to ingestion of too many cola drinks or too many starches. Even digestive glycosuria was mentioned as a cause of an abnormal two hour blood sugar level. There were 443 diagnosed as having no disease, although only six glucose tolerance tests were run on this entire group; no other postprandial blood test was made; 162 fasting blood sugar determinations were made, and the remaining 275 had diabetes ruled out by means of urinalysis and so-called "clinical judgment." The diagnosis of no disease was made on the 162 tested with fasting blood sugars, despite the fact that in 42 cases the fasting blood sugar was over 170 mg. per 100 cc.

TABLE 2.—*Concomitant Diagnoses Reported by Physicians*

	"New" Diabetic	"Nondiabetic"
Overweight	178	296
Arteriosclerosis	104	184
Old age	75	108
Gallbladder disease	40	58
Arthritis	20	75
Low carbohydrate diet	17	115
Hepatic cirrhosis	11	34
Hyperpituitarism	3	8
Hyperthyroidism	3	36
Pregnancy	5	16
Ulcerative colitis	1	5
Prolonged bed rest	0	13
Apoplexy	2	5
Acromegaly	0	3
Other	28	125
No disease	0	443
Total	815	1,166

COMMENT

As a result of the screening tests for diabetes, only 41.2% of those referred to physicians as having an abnormal carbohydrate metabolism were diagnosed by their physicians as having true diabetes. The greater percentage of referred patients were considered nondiabetic by a series of tests, which, from every standpoint, were inadequate to rule out this condition. Therefore, in view of the apparent dependence of the practicing physician on thoroughly unreliable tests, we feel that further instructions in the proper method of diagnosis of diabetes mellitus should be included in any information sent to physicians when patients are referred. We must agree with McCombs and Finn [4] that the education of the physician is essential if we are to take advantage of the benefits of the case finding surveys. Even though only 815 of these patients were confirmed by their physicians' reports to us as being diabetic, we feel that these screening surveys are worth while. We believe that many of those diagnosed, or in our opinion misdiagnosed, as nondiabetic will in a year or so prove to be suffering from this disease.

SUMMARY AND CONCLUSIONS

We have demonstrated in Georgia an effective method for screening large cross sections of the population on a voluntary basis. It has been shown there is a definitely higher prevalence of abnormal carbohydrate metabolism in the Negro female and that in all older age groups the incidence appears to be much higher than previously anticipated. Too many physicians are still employing a fasting blood sugar test or urinalysis as a diagnostic procedure for diabetes. An educational program is being developed in Georgia to bring the physicians up-to-date on the diagnostic criteria of this disease.

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Symptoms of Potassium Deficit.—Potassium is the chief cation of muscle cells and of most other cells, since it is present in the *intra*cellular fluid. Sodium, on the other hand, is the chief cation of *extra*cellular fluids of the body. Any considerable replacement of sodium by potassium in the extracellular fluids is accompanied by serious disturbances and may be fatal. No other cation can entirely replace potassium in the intracellular fluid without interfering to a definite extent with the functional activity of the cell. . . . Potassium concentration of normal serum is 16 to 22 mg. per 100 cc., averaging 19 mg. While there is little or no sodium in the erythrocytes, the average concentration of potassium in them is about 420 mg. per 100 cc.

Absorption of potassium, under normal conditions, occurs almost solely from the gastrointestinal tract, but less than 10 per cent of potassium elimination occurs via the intestinal tract. Large quantities of it are so eliminated, however, in patients having diarrhea, but this excess may be due, in large part, to failure of reabsorption of digestive fluids rather than entirely to failure of absorption of the ingested salts. About 90 per cent of excreted potassium is eliminated in the urine. . . . The usual symptoms are general weakness, lassitude, diffuse atonicity of the intestinal tract with ileus, and cardiac irregularities, and hypotension. The severity of the symptoms and signs of potassium deficit are related to the serum potassium level. Decreased serum potassium effects neuromuscular physiology, the cardiac muscle, and the smooth muscle of the gastrointestinal tract.

All stages of change, from mere weakness to complete paralysis of the muscles of the trunk and extremities, may occur in the individual when the serum potassium level falls below 8 to 10 mg. per 100 cc., or 2.05 to 2.56 mEq. per liter. Changes in conduction, irritability, and contractility of cardiac muscle occur when there are potassium levels under 10 to 12 mg. per 100 cc. (2.56 to 3.07 mEq. per liter). These changes are manifested by abnormalities in the electrocardiogram. Clinically, the doctor may note systolic murmurs, gallop rhythms, cardiac dilatation, and hypotension. When potassium deficits are severe, cardiac arrest and death may occur.—Gail Gar Lyai Li, M.D., Hypopotassemia, as Encountered on a Gynecology Service, *American Journal of Obstetrics and Gynecology*, June, 1953.

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[4] McCombs, R. P., and Finn, J. J., Jr.: Group Health Surveys in Diagnostic Center, New England J. Med. **248**: 165-170 (Jan. 29) 1953.

INFLUENCE OF PREGNANCY, LACTATION, GROWTH, AND AGING ON NUTRITIONAL PROCESSES

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Disease is as old as living matter. From time eternal, man has sought means of easing his pain, relieving his disabilities, and discriminating between the foods that are good for him and those that are not. His progress has been made through a process of trial and error. It is the physician's duty to devise ways and means of aiding him. In this report I will discuss how the physician can best make use of his opportunity.

The cells of the human body, like all other living things, must adapt, grow, and reproduce. By the time one has become a mature adult, he has had perhaps thousands of illnesses, large and small, which he has overcome. If the investigator is to aid the practicing physician, the work they do must be integrated, dedicated to the truth, and applied toward preventing disease and maintaining health. In the present-day practice of medicine therapy, the nature of which little is known, is often applied; yet something may happen and relief may occur, temporary perhaps but relief nevertheless. Of that something that happens even less is known than about the therapy that is applied. My definition of health, as it might fit into a working concept, is the accurate, harmonious, and constant integration of all the necessary biochemical factors in the body. The vitamin balance, the endocrine balance, the electrolyte balance, the control of the body temperature, the maintenance of the blood glucose level, and the supply of oxygen to the cells are a few of the important factors. A derangement of any of these or of any other biochemical system disturbs the harmony of the cells and results in ill health. Ill health may come from trauma or infection or even from the disturbance of mental processes; many physiological phenomena are associated with emotions. For example, anger may cause the blood pressure to rise, sadness may bring excessive lacrimation, and excitement may result in insensitivity to pain; therefore, the state of mind alters the body functions. Mind and body work together continuously and are mutually dependent. Health is a normal outcome of such a harmonious relationship.

The success of preventive medicine depends on early perception of any source of disharmony. By the time the physical signs characteristic of disease are observed, the tissues have been badly damaged. Hence, the physician should attempt to develop insight into the biochemical action within the cell so that he will have knowledge of living processes. Because the mechanism of action is unknown, he must not fall into the error of thinking it is unknowable. To initiate this concept is a formidable undertaking, but it is one that must be undertaken.

The problems first to be considered are what causes chemical deterioration and how can such deterioration be predicted chemically and be chemically rectified. At the present time many physicians tell their patients, in effect, "to be their age, to take it easy, to slow down, and to avoid the pace that kills." In fact, they advise them how to live with their strokes, with their coronary accidents, with their emotional depressions, and with their pains and agonies, and how to grow old gracefully. It would mean a great deal if middle-life deterioration could be predicted in advance and reversed before serious symptoms occur. If the physician could avoid putting patients in beds and could allow them to work, and if further chemical deterioration could be prevented and the deterioration already present could be reversed, hospitalization could be cut down enormously and many young executives, technical men, and laborers could be kept in production for many years to come. Heart disease and strokes are not sudden causes of death. They occur as a result of years of chemical deficiency. To prevent disaster, a chemical audit, a diagnosis of chemical deficiency, and a corrective nutritional and chemical regimen are needed.

In 1928 studies were being made from the point of view that a human being is a product of the air he breathes, the water he drinks, and the food he eats; day after day, year after year, the tissues of the human body are replaced by intricate combinations of oxygen, water, and food. Today this is a medical axiom, and physicians have gone a long way toward showing that disease is chemical and chemically correctable.

DEFICIENCY DISEASES

After eight years of studying in the North, my associates and I initiated a study of deficiency diseases in an area in which they were endemic. At first we studied only adults with nutritive failure, but we soon learned that the children ate inadequate diets similar to those eaten by adults and that deficiency disease lesions, which waxed and waned with the seasons, developed in these children. At this time we observed that clinical evidence of deficiency diseases in adults was much commoner in women than in men, particularly in women of child bearing age. Our studies showed that the mother's diet often was inadequate during pregnancy and lactation, and frequently her supply of breast milk was not sufficient for the infant's needs. The infants were given foods from the family table, usually corn bread, syrup, biscuits, and grits, but few ever received orange juice or cod liver oil. These children were puny and fractious. They cried a great deal, were restless, and seemed too tired to play. A remarkable difference was observed between the personalities of these children with nutritive failure and those of normal children. Unlike normal children, they were apathetic and lacked the usual childhood interests.

Read before the General Scientific Meeting at the 102nd Annual Session of the American Medical Association, New York, June 1, 1953.

From the Department of Nutrition and Metabolism, Northwestern University Medical School, Chicago, and the Nutrition Clinic, Hillman Hospital, Birmingham, Ala.

The scientific evidence on which this report is based was produced by the author and more than 100 associates. The investigations described here were initiated 25 years ago and have been aided by many philanthropic persons, foundations, and corporations.

The researches on milk in the recent past have been supported by the National Dairy Products Corporation, the researches on rehabilitation by means of hormones by the Clayton Foundation for Research, and the researches on certain aspects of geriatrics by Hoffmann-La Roche, Inc.

Vitamin Supplementation.—We decided to ascertain what would happen when we administered synthetic vitamin supplements consisting of nicotinamide, thiamine, and riboflavin to these children. We soon learned that the lesions of pellagra, beriberi, and riboflavin deficiency disappeared following the administration of sufficient doses of these vitamins. The children's appetites tended to increase, and they gained in body weight. Unless their diets improved, however, the gain soon leveled off. It was obvious that the synthetic vitamins did not compensate for the deficiency of the other nutrients in their generally inadequate diets.[1]

By this time it was apparent that we should study the effect of chronic nutritive failure on the growth progress of children. During the past 15 years the growth patterns of over 3,000 children with and without nutritive failure have been investigated. In association with Dr. Samuel Dreizen, Miss Catherine Currie, and Miss Jo Gilley, we selected and repeatedly studied 2,000 children without evidence of nutritive failure and 600 children with chronic nutritive failure who had never received vitamin or other dietary supplementation.[2] All the children were seen frequently in the Nutrition Clinic, and on each visit height and weight measurements were made. The ages of these children ranged from 3 years to 16 years. The growth patterns were evaluated independently by the Wetzel grid technique and by a compilation of height and weight curves.

Analyses showed that, in children with nutritive failure, a substantial lag in height and in weight was present by the third year of life. Thereafter, the weight lag increased progressively in both boys and girls with nutritive failure. The height lag in boys with nutritive failure became progressively greater, while that of the girls remained fairly constant. The maximum mean isodevelopmental level [3] reached by boys with nutritive failure was 140 at 15 years 6 months. This level was reached by boys without nutritive failure 2 years 3 months earlier, when they were only 13 years 3 months old. The maximum mean isodevelopmental level reached by girls with nutritive failure was 130 at 15 years 3 months. This level was reached by girls without nutritive failure 2 years 6 months earlier, when they were only 12 years 9 months old. By the time the boys and girls with nutritive failure began to approach physical maturity, they had undergone a mean growth lag of over two years.

Milk Solid Supplementation.—The extent to which this retardation is reversible by means of dietary supplementation with milk solids has been investigated with regard both to over-all body size and to skeletal maturity. Eighty-two children with nutritive failure were paired by sex, skeletal age, grid position, and prevailing phase of growth. These children ranged in age from 4 years to 15 years. One child in each pair received a dietary supplement of milk solids equivalent in protein value to one quart of milk daily, six days per week, for a period of 20 months. No supplementation was offered the other child of each pair. By using the Wetzel grid technique, we found that 73% of the children receiving the supplement made more than one isodevelopmental level per month, as compared with only 39% of those in the control group (those not receiving the supplement). Improvement in physique was observed in 34% of the test subjects and in only 15% of the controls. Speed of growth was increased in 54% of the test subjects and in only 7% of the controls. Improvement in growth quality (indicated by improvement in physique plus an increase in speed of growth) was observed in 27% of the test subjects but in none of the controls.

In association with Dr. Dreizen, Dr. Richard Snodgrasse, Dr. George S. Parker, and Miss Currie, we used similar criteria in selecting an additional 41 pairs of children. These children ranged in age from 1 year to 10½ years. The children in the test group were given milk solids equivalent in protein value to three quarts of milk a week for a period of 40 months, while the control group did not receive a dietary supplement of any kind.[4] Although the test subjects in this group received the same total amount of milk solids as those in the first group, the milk solids were given to the second group over a period of time twice as long, so that the average weekly amount was only half of that given to the first group. At the end of the 40 month period no differences between the test and control groups were measurable either by the Wetzel grid technique or by the skeletal maturation techniques, thus showing that we had arbitrarily selected an average weekly amount of milk that was too small to produce measurable changes.

In 19 of the test subjects the amount of milk solids was increased to the equivalent of 12 quarts of milk weekly (2 quarts a day, six days a week). This was four times the average weekly amount given during the 40 month period and twice the average weekly amount given during the 20 month period. The remaining test subjects continued to receive the three quart weekly level. To facilitate giving 12 quarts of milk weekly and to make it possible for the entire daily amount to be given in one feeding, one-half the milk solids was reconstituted in as small an amount of water as possible and frozen to the consistency of ice cream. One-half ounce of sugar and a few lemon drop chips were added for flavor and palatability. The other half of the milk solids was reconstituted to either a pint or half-pint volume (depending on the age of the child) and fed with the ice cream. This supplement was fed for a period of six months. At the end of the six month period the rate of skeletal maturation in the test subjects had increased by 80%. The increase in skeletal maturation of boys receiving the 12 quart weekly level exceeded that of their paired controls by 93% and exceeded that of boys receiving the 3 quart weekly level by 65%. The increase in skeletal maturation of girls receiving the 12 quart weekly level exceeded that of their paired controls by 90% and exceeded that of girls receiving the 3 quart weekly level by 90%. In 17 of the 19 test subjects (89%) on the equivalent of 12 quarts of milk weekly, the rate of skeletal maturation in the most advanced centers increased, thereby reducing the lag between their actual and genetically limited growth rate. This occurred in only 45% of the children receiving the three quart weekly level and in 46% of the controls. Acceleration in the rate of maturation of the least advanced bone center was shown by 58% of the children receiving the 12 quart weekly level and in only 23% and 27%, respectively, of those receiving the 3 quart weekly level and those serving as controls.

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[1] Spies, T. D.; Ewing, G. D., and Mann, A. W.: Effect of Synthetic Niacin Amide, Synthetic Thiamine and Sythetic Riboflavin on Infants and Young Children with Deficiency Diseases, Arch. Pediat. **61**: 517 (Oct.) 1944.

[2] Spies, T. D.; Dreizen, S.; Currie, C., and Gilley, E. J.: Unpublished data.

[3] By the Wetzel grid technique, isodevelopmental level is a measure of the body surface area based on the height and weight of the child.

[4] Spies, T. D., and others: Unpublished data.

Despite differences in nutritional requirements at different ages, there appears to be no relationship between chronological age and the degree of increase in bone maturation. From this study it appears that the removal of deficiencies of skeletal maturation in the child, regardless of age, is dependent primarily on the adequacy of the level of supplementation, thus the retarding effect of prolonged nutritive failure is reversed promptly if the nutrients in the dietary supplement are supplied in sufficient amounts to overcome the accumulated deficiencies. Brief summaries on the following two patients are illustrative:

Case 1.—This girl, the youngest of five children, was born at a time when her family's economic status was at its lowest. Her father, who had worked as either a miner or a sharecropper since the age of 13 years, was in a mining accident two years prior to the child's birth and was never again able to work. From the time of his accident until his death eight years later, the family was dependent on charity. They received from $8.00 to $18.00 per month. Their diet consisted of dried beans, corn bread, biscuits, and occasionally a small amount of fat pork. During this interval pellagra developed in the mother and four of the children, and they were treated by us. When we first examined the girl, she was nervous, cross, and apprehensive. She cried frequently, did not sleep well, and complained of muscular cramps, headaches, and stomach-ache. She had bilateral cheilosis. She was a small child who looked like a wizened old lady. In school she had not done well; she had repeated each semester at least once and was only in the third grade at 12 years of age. She enjoyed playing with the children in her own grade, who were about four years younger than she.

The grid analysis for this girl is seen in figure 1. When she was 7 years 10 months of age, she had clinical pellagra and had an extremely poor physique (channel B-4 on the grid). She was progressing on a very slow age schedule. Her developmental age (using the 67% auxodrome, or age schedule, as the standard of reference) was 5 years 7 months, showing a growth lag of 2 years 3 months. When she was given nicotinic acid, the lesions of pellagra disappeared and she felt better than she had prior to this therapy. Her diet remained inadequate, however, and at the end of a year she was retarded 4 years 6 months in over-all body size. This indicated that, although the nicotinic acid was specific for nicotinic acid deficiency, her growth and development could not improve until her dietary intake improved. Her diet then became somewhat more adequate, and by the time she was 11 years 6 months of age, her growth lag was 2 years 10 months. We decided to put her on supplementary feedings of reconstituted dry milk solids, and she was given the equivalent in protein value of one quart of milk per day, six days a week, for a period of 20 months. No further improvement in physique occurred, but her speed of development continued to increase slowly. In the 20 month period her retardation in growth was reduced by five months. During the time she received the milk supplement, she was cheerful, friendly, and pleasant. Her mother and all other observers noted that she had more energy, slept better, and was less nervous than she ever had been. Her teachers saw a definite change in her ability to concentrate on her studies and to retain information that she acquired. They noted also that she had a great deal more energy, and for the first time she would participate in group activities. From that time on, she had no failing grades and was delighted and proud of herself when she passed to the fourth grade.

Case 2.—The patient's family, as that of case 1, was in a state of nutritive failure from the time the members were first examined in our clinic. The patient, 1 of 11 children, was breast-fed until she was 18 months of age and had no supplements such as orange juice or cod liver oil. She was given butter bean soup "to start real eating." As a small girl, she was easily fatigued and had frequent headaches and severe cramps in her legs. Most of the time she fretted and cried, and frequently she had bilateral cheilosis. At best, her two meals a day included butter beans, salt pork, bread, and molasses. On several occasions treatment with riboflavin was followed by relief of the cheilosis. When she was 12 years of age, a supplement of dry milk solids reconstituted in water was initiated. Promptly she began to grow taller and to fill out. After she had received the milk supplement for 14 months, her body changed from that of a scrawny, thin girl to that of an adolescent. Her energy and appetite increased, and she had no lesions of riboflavin deficiency. When the therapy with a supplement was discontinued, the cheilosis returned. When she was treated again, the lesions disappeared.

The grid analysis from case 2 is shown in figure 1. As can be seen, when she first was seen in the clinic, her physique was fair (channel B-2) and she was progressing on a very slow age schedule (98% auxodrome). Using the 67% auxodrome as the standard of reference, she was retarded 1 year 6 months and her developmental age was 6 years 6 months. Further loss of physique occurred together with progressively greater retardation, until at the age of 10 years 4 months she was 2 years 8 months retarded. At that time she began to progress, and her speed of development (only one incident of growth failure, occurring at 11 years 4 months) increased, until at the age of 12 years she was retarded only 16 months. At this time she was placed on the dietary supplement of dry milk solids equivalent in protein value to one quart of milk per day, six days a week, for a period of 14 months. Throughout the period of supplementation, she continued to improve with less fluctuation and continued to increase her speed of growth. At the end of the period of supplementation she had a fair to good physique and was retarded only seven months. Her retardation was reduced by nine months in the 14 months of supplementary feeding. The differences in maturity, as indicated by secondary sex characteristics, are clearly evident in the photographs (fig. 1) of the two girls.

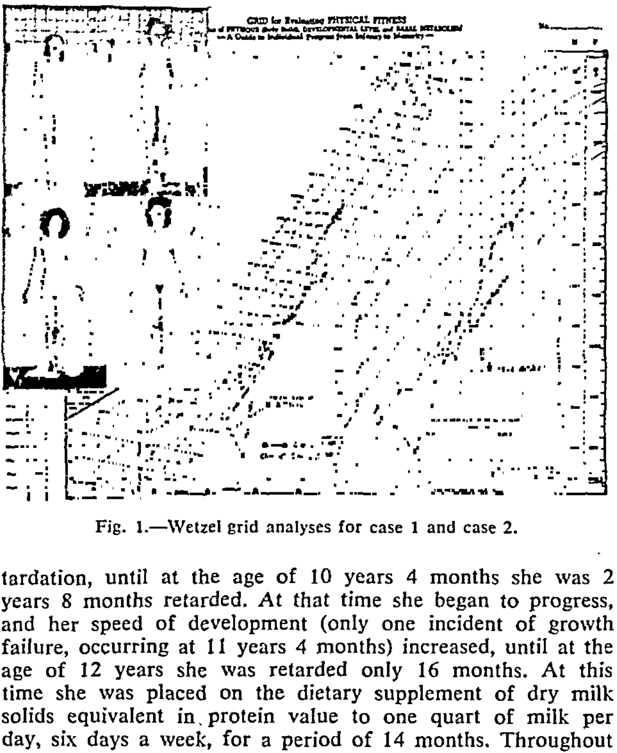

Fig. 1.—Wetzel grid analyses for case 1 and case 2.

Solid Food Supplementation.—Nutritionally speaking, a 9-month-old baby has had 18 months of nutrition, that is, including the 9 month prenatal period. With birth the whole question of adjustment arises. How soon the baby can take solid foods is an important matter. The revolutionary schedule of giving solid foods early is one of recent vintage. For too long this type of food was not offered to the infant, since it was considered that a baby's stomach was not big enough to contain sufficient food to provide adequate nourishment and that he should have frequent feedings in liquid form. Recently we began studying the introduction of food other than milk as early as the second day of life. For a special long-term study we selected 24 children, ranging in age from 2 months to 2½ years, and placed them on supplementary feedings of Swift's meats for babies. Children under 1 year of age arbitrarily are given strained food, and those over 1 year of age are given chopped foods. Each subject receiving the meats has accepted this supplementation enthusiastically and appears to be growing at a faster and more regular rate than his control.

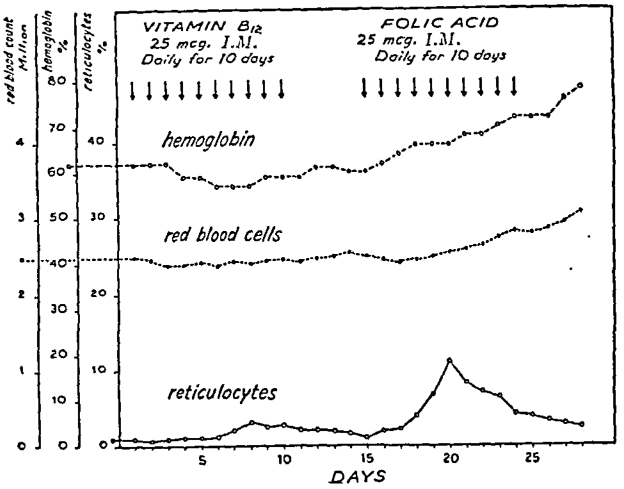

Fig. 2.—Comparative evaluation of vitamin B_{12} and folic acid per unit of weight in a patient with macrocytic anemia of pregnancy.

Rickets: In our clinic it is not uncommon to see an obvious case of rickets. It always has interested us that severe clinical rickets occurs not only in children who lack vitamin D or sunlight exposure but also in some children who grow rapidly. This rapid growth has a great deal to do with the clinical evidence of rickets. Clinical rickets, as we see it in Alabama, occurs chiefly among the Negro children who sleep a great deal during the day. Those who are out in the sun show no evidence of rickets. Occasionally one sees white children with rickets, but usually they are children who are growing very rapidly. The incidence of rickets is limited almost entirely to the temperate zones. The characteristic deformities are not so common now as formerly, but we still see the milder form. In some ways the mild form is more serious, since it is more difficult to recognize and, therefore, may escape treatment. It is well known that the pathogenesis of rickets lies in the condition of the calcium and the phosphorus in the blood serum and that in rickets the concentration of phosphatase in the serum is increased. Human milk is by no means antirachitic. To prevent rickets, vitamin D should be administered. Vitamin D produces its regulatory effect on the content of calcium and phosphorus in the fluids of the body. With satisfactory treatment the bony deformities of rickets gradually disappear, the bones acquire an increased degree of rigidity, and the muscles seem to improve.

Anemia: A medical mistake being made at the present time is failure to administer iron in cases of iron deficiency anemia. When the physician finds that the patient cannot tolerate large doses of iron because of the resulting gastritis or diarrhea, too often he gives the patient no iron at all. Smaller doses would be well tolerated and, if given over a long enough period of time, would produce satisfactory responses.

Ascorbic acid, folic acid, and vitamin B_{12} are nutrients that are essential for health and well-being. Vitamin B_{12} is essential for the integrity of the nervous system and the bone marrow. Folic acid is essential for relieving the macrocytic anemia of pregnancy and of infancy and is most useful in the treatment of persons with endemic sprue or nutritional macrocytic anemia. Figures 2 and 3 indicate our recent experiences and observations with these materials. The use of ascorbic acid in the treatment of scurvy is extremely well known. It, like pantothenic acid, seems to be essential for the integrity of the adrenal glands.

Obesity: The obese patient presents a medical problem common to most practicing physicians. Patients offer many excuses for overeating, but, if they will consider their problem realistically, they are inclined to agree with the diagnosis of obesity. What they really do not like about the diagnosis is the implication that they are "eating themselves fat." Many reducing diets are unbalanced and actually inadequate in a number of respects. Nonfat dry milk solids are being used more and more as a basis for reducing diets. Because they are an excellent source of protein and calcium, they make an important contribution to a reducing diet. A nonfat dry milk that we have found acceptable and useful is a product that has vitamins and minerals added in the following amounts per quart:

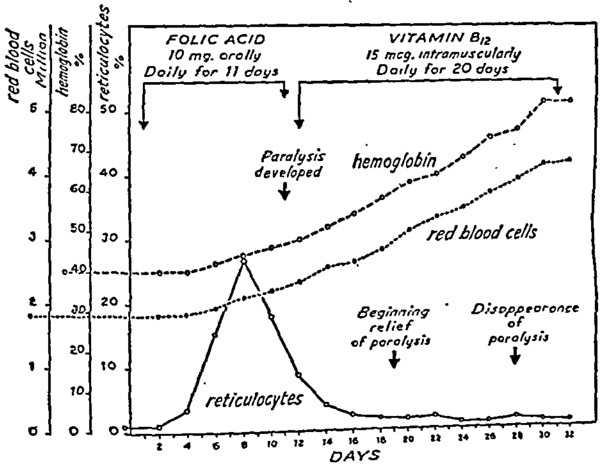

Fig. 3.—Development of symptoms of acute combined degeneration of the spinal cord in patient with pernicious anemia who was receiving folic acid therapy; the symptoms disappeared with vitamin B_{12} therapy.

Vitamin A	4,000 USP units
Vitamin D	400 USP units
Vitamin B_1	1 mg.
Vitamin B_2 (riboflavin)	2 mg.
Niacin	10 mg.
Iron	10 mg.
Iodine[5]	0.10 mg.

Physicians are beginning to understand that overeating often is a manifestation of a fundamental disturbance that is primarily psychological or emotional in nature. Leonard Williams has said that obesity is divided into three stages known, respectively, as the enviable, the comical, and the pitiful. This is a false estimate of values. Obesity is always tragic. A list of its hazards is terrifying.

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[5] Iodine may be added in the Midwest because of the incidence of endemic goiter.

DISEASES IN OLD AGE

Every investigation of nutritive failure that we have made in the past 20 years has indicated the predominance of mixed, rather than single, deficiencies of elements essential for life. The margin of safety against certain deficiency diseases is narrow rather than broad. Figure 4 shows the age incidence of deficiency diseases in males and females. Note that during the child bearing period of life many more women are affected with clinical evidence of deficiency disease. After this period is over, this difference gradually disappears, and after the age of 70, the age incidence of dietary deficiency diseases seems remarkably similar in men and women. For a quarter of a century I have had a deep interest in trying to understand the underlying chemical changes that precede senescence. A long time ago we became impressed with the extreme variation in response to the wear and tear of life. It seemed very striking that some persons weathered the years from 45 to 70 in such a way as to appear to be still as biologically, physically, and mentally active as they were at the age of 40 and seemed destined to live a number of years. The true killers such as cerebral accidents, coronary disease, and cancer of the stomach, which strike so often between 45 and 70 years of age, seem less likely to occur after the age of 70

In this report it is not possible to mention all the combinations of vitamin and mineral deficiencies that might occur. As a part of our over-all concept, we consider that the nutrients essential to the growth and development of infants and children are necessary for the maintenance of vigor and strength of the person who has matured. We have chosen a number of older persons with well-recognized chronic syndromes and demonstrated that their health can be so improved that they can be returned to gainful occupations. How much better it would be if susceptibility tests were available that would tell in advance which persons should be observed and for what, so that truly scientific preventive medicine could be done. When that day comes, physicians shall be busy preventing disease rather than treating patients in late stages of disease.

Leukemia.—A number of substances are directed toward destroying existing leukemic tissue and toward preventing the multiplication of leukemic cells in persons with leukemia and lymphosarcoma. None of these substances is a positive cure for the disease. We have been concerned especially with the effect of corticotropin (ACTH) and cortisone and have seen some interesting results, particularly in cases where the bone marrow has been heavily infiltrated. The brief case history that follows indicates what can be accomplished in selected cases:

Case 3.—A 53-year-old white woman was brought to the clinic because of loss of weight and strength, a breaking out of the skin, and swellings in her neck. She had been in good health until a few years before admission, when she noticed that she lost her strength insidiously and could not do her housework as well as usual. She eventually could not do her housework at all; soon a rash appeared all over the body. Swellings appeared under her arms and in her neck. Her white blood cell count was 78,000, and at this time she was given x-ray therapy. The white blood cell count was reduced to 14,000, and she felt somewhat better. After this, however, she promptly suffered a relapse, and x-ray therapy was found to be of no value. Six months after she had received no therapy whatsoever, she returned to the clinic. She said that she "just hardly could go." One hundred milligrams of pituitary corticotropin (Armour) was administered intramuscularly in divided doses every six hours. Promptly she began to feel better, her leukocyte count fell from 60,000 to 13,850, and hemoglobin rose from 36% (5.6 gm.) to 79% (12.2 gm.). Her weight increased 10 lb. (4.5 kg.), and she gained greatly in strength: After being treated for a month, she felt very well. She had started to do her own housework again. Therapy was discontinued at that time.

While examination reveals some swelling of the lymph nodes and blood smears show characteristic leukemia, the patient in case 3 has been free of symptoms for over three years. We do not understand the precise chemistry of what has happened in this patient or in others who have improved, nor do we understand the difference between the patients that improve and those in whom a satisfactory response does not occur. Perhaps any form of leukemia is not a single disease but is the result of a variety of causes. At any rate some vital reaction occurs.

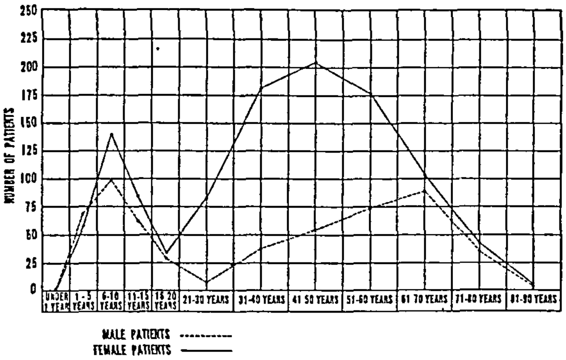

Fig. 4.—Age incidence of patients with deficiency diseases in 1944.

Since we have seen no patient who has returned entirely to normal, we must conclude that there is no known method of treatment that is a cure for leukemia.

Chemical Disturbances.—In our approach to the chemical disturbances that may affect persons of "advanced maturity," we keep in mind that these disturbances are responses of living tissues to abnormal chemical situations. We know that tumors existed in prehistoric animals, and in our study of the problem we have chosen many avenues of approach.

Several years ago Dr. Rolf Ladisch submitted to me a hypothesis that incorporated the concept that the quinones from certain beetles might be carcinogenic under certain circumstances. Dr. Ladisch, Dr. Dreizen, and I have worked with materials from the thoracic and abdominal glands of the Tribolium confusum and Tribolium castaneum species of beetles, insect infestants of common cereals, in order to observe their effect on living matter. From the secretions of these glands we have obtained and used three quinones with chemical structures resembling carcinogenic agents. To 36 rats of the Long-Evans strain, these materials were given in varying doses in the food, in the water, or by subcutaneous injection. For a long period of time there were no noticeable effects on the growth rate, health, or physical appearance of the rats so treated. Eventually 10 of the 36 rats in the experimental group and 1 of the 9 litter mate controls (not given the test material) showed a progressive decline in weight, extending from four to six weeks prior to death. Gross and microscopic evidence of tumor formation was found in each of these animals. The structure of these tumors can be seen in figure 5. From these preliminary observations it would seem that the quinones isolated from the glandular secretion of the beetles probably provoked tumor formation and that the tumors are of the type described by Gillman and Gillman in their classic work on experimentally produced lymphomata in rats.[6] Many questions arise that eventually must be answered. Could these masses be transplanted? Why did tumors not develop in the majority of rats? Is there any practical importance to these observations, or do they merely ascertain the information that the administration of the quinones may be followed by tumor formation? At least these preliminary observations fit into our over-all concept that proper chemical environment is of utmost importance and is essential for the health of all living tissue.

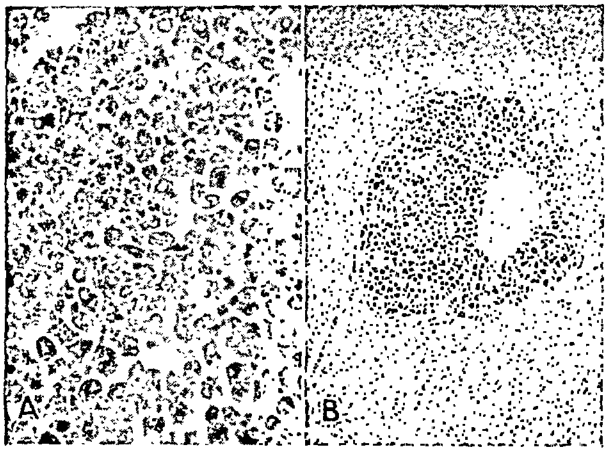

Fig. 5.—Tumors found in rats injected with carcinogenic quinones from beetles. *A*, abdominal mass (× 167), and *B*, liver showing normal liver pattern surrounding a well-demarcated cluster of abnormal cells (× 30).

Psychotic Reactions: For many years it has been known that pellagrins often manifest psychotic changes, but the association of psychoneurotic symptoms with subclinical and mild pellagra was not appreciated until it was pointed out that these patients were frequently disgnosed as neurastheniacs. We learned that these symptoms had certain distinctive characteristics, that they were significant in making an early diagnosis of the disease, and that such symptoms disappeared dramatically following nicotinic acid therapy. In addition to the elementary syndrome associated with it, there were the general symptoms of central nervous system involvement characterized by weakness, increased fatigability, sleeplessness, and headaches.

As a part of the elementary psychosensory disturbance, the patients described conditions as making them feel "uneasy" or as bothering or hurting them. They could not tolerate bright colors or bright lights, and noises such as the slamming of a door or the screaming of a child produced a great emotional shock, with the result that they felt "jerky and shaky." As the condition became severer, these noises became unbearable. They found that odors that had never bothered them before were so disagreeable that they caused nausea and vomiting. Several patients who had enjoyed cooking said that the orders become so unpleasant that they caused distress and agony. Tastes changed so that they disliked foods intensely. These patients were tense, irritable, and, as they said, "on edge." Prominent complaints were dizziness, a feeling of uncertainty, and difficulty in maintaining balance. They complained of feeling "restless on the inside" and of being much more excitable and sensitive than they were before their illness. Their emotional reactions were directed toward a depressive response; they had sad, gloomy moods associated with constant apprehension. They seemed constantly to be engaged in a struggle between a desire to rest and a feeling of restlessness. The breakdown of personality was striking: persons previously strong, courageous, and enduring became wary and apprehensive.

Pernicious Anemia: We have known for some time that a rare patient with pernicious anemia in relapse will respond to as little as 5 mcg. of vitamin B_{12} administered orally, whereas others will respond only when a dose of several milligrams is given. For many years we have been interested in the fact that patients with pernicious anemia lack a certain enzyme in their gastric juice. There is much current interest in intrinsic factor preparations, which act as activators of vitamin B_{12}, making it possible to decrease greatly the oral dose of this vitamin. Several pharmaceutical concerns have produced active intrinsic factor preparations that we have found will potentiate the effect of vitamin B_{12} administered by mouth to patients with pernicious anemia in relapse. The response of such a patient to this therapy is illustrated in the following case history:

Case 4.—A 72-year-old machinist was brought to the clinic in late 1948 complaining of weakness, fatigability, and occasional soreness of the mouth and tongue. Fatigability and loss of strength began about three years previously. He felt tired all the time and was content to just sit all day. The soreness of his mouth and tongue began two years previously, recurred intermittently, and varied in severity; at times he had difficulty in even drinking water. A sensation of numbness of his feet and of having pads of cotton under his toes had been present for a year and a half. Numbness of his fingers had been present for three weeks. For several weeks he had noticed dyspnea on exertion. A year and a half before he was admitted, he consulted a physician who told him that he had anemia bordering on pellagra and gave him an injection every other day for about a year. In the patient's opinion this therapy gave him little, if any, relief. Because his work required a high degree of skill in using his hands, he had not been able to work regularly.

Physical examination showed generalized pallor. The scleras and conjunctivas were pale, and there was slight icterus of the scleras. His tongue was slightly thickened, and there were scattered denuded papillae at the tip and along the margins. The findings of the neurological examination were within normal limits. An oral glucose tolerance test showed a normal curve. Repeated gastric analyses showed no free hydrochloric acid in the gastric juice even after histamine stimulation. The stools were normal. There was megaloblastic arrest of the bone marrow, characteristic of pernicious anemia in relapse.

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[6] Gillman,; J. Gillman, T.; Gilbert, C., and Spence, I.: Lymphomata (Including Hodgin's-Like Sarcomata): Their Experimental Production: A Study of Their Pathogenesis and Etiology and a Comparison with Corresponding Tumours in Man, Clin. Proc. 8: 222 (Dec.) 1949; The Pathogenesis of Experimentally Produced Lymphomata in Rats (Including Hodgkin's-Like Sarcoma), Cancer 5: 792 (July) 1952.

The initial peripheral blood values were red blood cells 2,870,000, hemoglobin 72% (11.1 gm.), and reticulocytes 0.4%.

He was given a single 50 mcg. oral dose of vitamin B_{12}. His blood values and clinical condition remained essentially unchanged for a month. Then he was given a single 450 mcg. oral dose of vitamin B_{12}. Four and five days later his reticulocyte count was 4.8% and 5.0%, respectively, and subsequently there was a slight increase in red blood cells and in hemoglobin. His fatigue was relieved slightly, he felt better in general, and his color improved. Neurological examination at this time showed slight hyperesthesia of the distal third of the forearms, of the hands, and of the fingers, slightly severer in the fingers. There was slight hyperesthesia from just above the knees to the ankles. There was a tingling sensation of the legs and slight tenderness of the heels.

He was given a single 25 mcg. intramuscular injection of vitamin B_{12}. Four days later he volunteered that there was less tingling of his fingers and numbness of his toes and that he no longer had any burning sensation of his tongue. By the following day all the redness of his tongue had disappeared, and he said that he had more energy and that he "felt like doing something." The numbness of his feet and the tingling of his fingers continued to subside. Nine days after the first injection of vitamin B_{12}, he was given a second injection of 25 mcg. intramuscularly. Within the next three weeks the symptoms of nerve involvement, all the soreness of his mouth and tongue, and the dyspnea disappeared gradually. At the end of this time his blood values were red blood cells 4,210,000; hemoglobin 83% (12.7 gm.); and reticulocytes 1.8%. A month later he went back to work full time.

In the following four years he had intermittent therapy with vitamin B_{12}. In March, 1953, he complained of fatigue, tingling and numbness in his fingers, and a burning sensation of his tongue, which was moderately reddened on both upper and under surfaces. His blood values were erythrocytes 3,240,000; hemoglobin 73% (11.3 gm.); and reticulocytes 2.8%. He was given four tablets of vitamin B_{12} and an intrinsic factor concentrate daily for 10 days. On the fourth day of treatment he felt less fatigued and the soreness of his mouth decreased. The tingling and numbness of his fingers decreased on the sixth day of treatment. By the seventh day he said that he felt "like a 2-year-old." By this time all the redness and soreness of his tongue had disappeared, and by the ninth day he no longer had any sensation of numbness and tingling of his fingers. On the seventh day of therapy his reticulocyte count was 10.8%. On the 10th day his red blood cell count was 3,750,000 and his hemoglobin 83% (12.8 gm.). Three weeks after this therapy was initiated, his red blood cell count was 4,070,000 and his hemoglobin 72% (11.1 gm.).

After the first period of therapy in 1948, he began working regularly. His work requires a high degree of skill in the use of his hands. He measures with a micrometer, and measurements must be accurate to one-thousandth of an inch. He says, "I feel a thousand times better than I did when I first came to the clinic, and I am happy to work again."

Studies of this case and many others show that, in order to determine the intrinsic factor activity of any preparation, one must first do carefully controlled tests showing that the oral administration of the amount of vitamin B_{12} in the preparation cannot, in itself, produce any detectable effect. Then one must show that the administration of the same amount or less of vitamin B_{12} and a potent intrinsic factor concentrate is effective under the same conditions (fig. 6).[7] After years of testing, I prefer to conduct the tests using 5 mcg. of vitamin B_{12} per day, although we often use 10 or 15 mcg., or even more. The larger amounts are less satisfactory because they require more careful and definite control. We have found that patients who do not respond to 5 mcg. of vitamin B_{12} orally have a maximum hemopoietic and clinical response when as little as 1 mg. of the purest concentrate of intrinsic factor is administered along with 5 mcg. of vitamin B_{12}. We have given concentrated intrinsic factor and vitamin B_{12} as long as two hours apart, and a definite hemopoietic and clinical response has followed, indicating that the intrinsic factor and vitamin B_{12} must interact in the intestinal tract. The purest preparations of intrinsic factor concentrate show definite evidence of being a protein. Obviously such studies show that the day of practical oral therapy with vitamin B_{12} is near at hand for the physician who chooses to use it for selected patients.

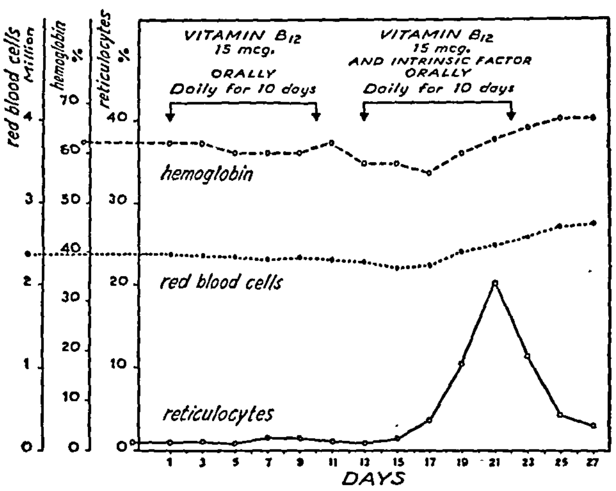

Fig. 6.—Hemopoietic response of patient with pernicious anemia to the oral administration of vitamin B_{12} alone and with intrinsic factor.

In many cases vitamin B_{12}, like some of the other vitamins, has a special effect on appetite. This appetite stimulating property is not precisely related to the increase of red blood cells or hemoglobin in the blood. When patients with pernicious anemia or tropical sprue in relapse are given transfusions and their blood values increase, they do not get the remarkable increase in strength, vigor, and appetite as is induced after the administration of large amounts of vitamin B_{12} or folic acid (fig. 7 and 8). In studying selected patients with pernicious anemia we have learned that when their blood values increase to normal following repeated transfusions, they feel fine; if they are given injections of sterile sodium

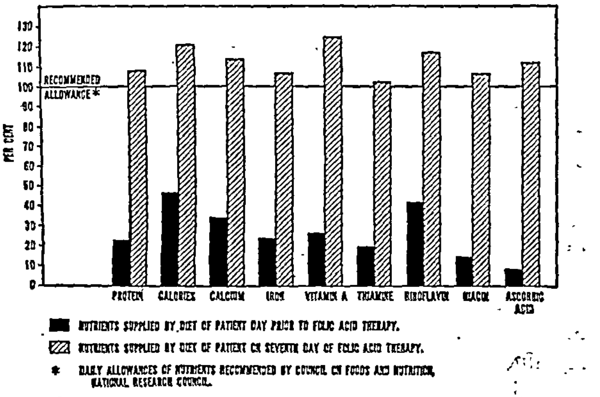

Fig. 7.—Nutrients supplied by diet of patient with pernicious anemia before and after folic acid therapy.

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[7] Spies, T. D., and others: Antianemic Properties of Reaction Products of Vitamin B_{12} and the Intrinsic Factor, J. A. M. A. 151: 1264 (April 11) 1953.

chloride, they do not get an increased sense of well-being; when vitamin B_{12} is administered without their knowing they are getting different injections, they do get a definite "lift" and feel much better.

Vitamin B_{12}, like folic acid, thiamine, nicotinamide, riboflavin, and ascorbic acid, is singularly free from unpleasant side-effects. It has a most important place in practical therapeutics. The evidence of 25 years of work shows a wide variation in the individual needs of patients with pernicious anemia. The value of vitamin B_{12} as a growth factor for children cannot be regarded as established. One cannot, by physical examination or studies of the blood or bone marrow, tell before therapy whether or not a person has a deficiency of folic acid or vitamin B_{12}. Folic acid has a special relationship to pregnancy; vitamin B_{12} has a special relationship to the nervous system. Vitamin B_{12} itself was isolated during a search of liver extracts for the material that produces a remission in pernicious anemia. There is a plentiful and cheap supply, and the material has become available for general use.

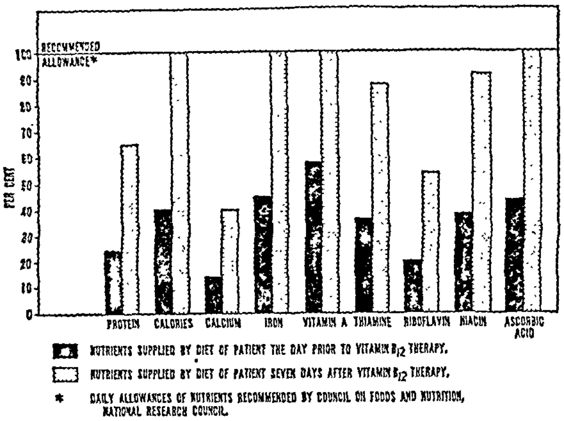

Fig. 8.—Nutrients supplied by diet of patient with tropical sprue before and after vitamin B_{12} therapy.

Megaloblastic Anemia: In the treatment of the average case of megaloblastic anemia of sprue, of infancy or of pregnancy, vitamin B_{12} is not as efficient as folic acid. In fact vitamin B_{12} does not induce a hemopoietic response in the usual case of macrocytic anemia of pregnancy or of infancy. It is clear that many patients need both folic acid and vitamin B_{12}. Folic acid is composed of pteroic acid and glutamic acid, and, when these materials are administered separately or together, the body cannot fabricate them to make folic acid, thus showing that folic acid is a true vitamin and must be prefabricated outside of the body. When given in massive doses, thymine (5-methyluracil) produces a hemopoietic and clinical response similar to folic acid. The folic acid content of the following foods is high: fresh, dark green, leafy vegetables; liver; cauliflower; kidney; beef; veal; and dry wheat breakfast cereals. The following foods are low in folic acid content: root vegetables; tomatoes; bananas; milk; cheese; pork; ham; lamb; rice, corn meal; and sweet potatoes.

Arthritis: In the four years that have elapsed since corticotropin and cortisone were first used as therapeutic agents, so much has been written on them that it often must be difficult for the practicing physician to evaluate their usefulness in the day-to-day practice of medicine. In order to do this, he first must realize that the adrenal cortex is vital to daily living in protecting the human being against many changes in his environment. Although the proper use of these hormones requires a great deal of scientific information, it is desirable that the practicing physician use them. By judicious use, they have been found to be invaluable therapeutic agents, as is illustrated in the following case history:

Case 5.—A 40-year-old coal-loading machine operator was admitted to the clinic complaining of arthritis of nine years' duration. Until nine years previously he considered his health to have been unusually good; then he twisted his left shoulder while operating a coal-loading machine. A roentgenogram of this shoulder revealed nothing abnormal at that time. His shoulder was taped, and he was given heat therapy, but the pain was so severe that he was given sedatives to relieve it. After five or six days the pain subsided sufficiently to enable him to return to work, but it was not relieved completely, About a week later intense pain suddenly developed in the right groin, and he was admitted to a hospital and given injections to relieve the pain. After nine days in the hospital he was discharged. Since then, the pain had "jumped" from one joint to another and by this time had involved almost every joint in his body. Every two or three weeks he had an acute attack of pain, and, when his joints became swollen, red, and hot, the pain was so intense that he was unable to work for four or five days. Five years prior to his admission he gave up working in the mines, and since then he had done odd jobs when he felt able to work. During the nine years of his illness he had had many kinds of therapy. Hot mineral baths had given him more relief than anything else he had tried.

Physical examination showed a well-developed, well-nourished man with good color. His finger joints were slightly enlarged and tender. There was slight atrophy of the intrinsic muscles of the dorsum of the hands. The elbows were slightly enlarged. The right shoulder was tender and slightly swollen. There was diffuse swelling and slight tenderness of the right ankle, and there was tenderness through the distal part of the right foot. The left ankle was slightly swollen but not tender. Over and just below the left elbow were two groups of multiple nodules; each group was about 1¼ in. in diameter. There was a large firm nodule on the left heel and a firm nodule on the bottom of the left foot. There was a smaller nodule on the right elbow and a similar one on the left wrist. The sedimentation rate was 50 mm. per hour, corrected. Roentgenograms showed decalcification of the bones and swelling of soft tissues around the affected joints. All other laboratory findings were within normal limits.

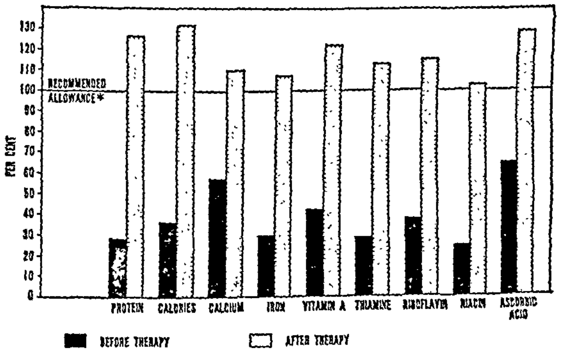

Fig. 9.—Nutrients supplied by diet of patient with rheumatoid arthritis before and after cortisone therapy.

He was given a total of 1,900 mg. of cortisone acetate (Merck) intramuscularly in a period of six days. The pain in the involved joints began to subside three hours after the first injection; his hands began to "relax," and there no longer was any tension in his shoulders and elbows. He slept more that night than he had in a long time. By the following morning the swelling in his right ankle had subsided and he could close his hands completely for the first time in several years. He stated that he never had had as much relief from any other therapy. Gradually all the swelling and soreness of the joints disappeared, so that he could walk and move around with ease, and the nodules became softer. His sedimentation rate decreased to 30 mm. per hour with correction.

For the past four years he has been given therapy intermittently either with cortisone acetate (Merck) intramuscularly or orally or with corticotropin (Armour) intramuscularly. In from four to five days to a month some pain and discomfort return, but they never have been so severe as before the first period of therapy, and he is able to work regularly driving a coal-loading truck. He eats a great deal after therapy with either corticotropin or cortisone acetate, as shown in figure 9. Without treatment his sedimentation varies between 40 and 50 mm. per hour, corrected, and after therapy it decreases to about 17 mm. per hour, corrected. This patient, like many others in the clinic, cannot work without treatment. When enough therapy is given, the symptoms disappear; his strength and appetite return, with the result that he is able to do heavy manual work and support himself and his family.

When one looks at the major causes of death in 1900 and contrasts them with the major causes of death in 1950 in the light of the studies that I have just reported, it is obvious that heart disease, carcinomas, and vascular lesions of the nervous and renal tissues should be approached from the nutritional and metabolic point of view. We propose to do this at our institute in Chicago.

SUMMARY AND CONCLUSIONS

In our studies in the past 25 years, which are touched on briefly here, we have stressed that the lack of proper growth and development of infants and children is a chemical and clinical problem and that the process of aging and illness should be approached as a chemical as well as a clinical problem. Deficiency diseases in human beings tend to develop slowly, and what many physicians fail to realize is that they are corrected slowly. All too frequently the patient and the physician become impatient because they do not realize the time necessary to restore physiological function that was damaged by a slow and long-drawn-out process. Frequently there is a point beyond which there is some irreversible change.

More should be known of the chemistry of disease. When it is, physicians will not be content to accept the traditional view that when a person is not well, or as one ages, he must expect to lose strength, keenness of vision, and alertness and to look and act "old." The physician can never get away from the challenge to think. There will be no automatic or mechanical diagnosis in the near future. The physician who has an uncanny sensitiveness associated with a capacity for memory and experience is needed more in this field than in any other. He must have in mind that there is nothing constant in the human body. The nutrients ebb and flow into the cells. They all bear potentials for change. In this ever-shifting, ever-renewing of the constituents of the body, the cells must be renewed or there will be deterioration. These forces shape the patient's destiny.

As an outgrowth of 25 years' work, the following four essentials for therapy in nutritive failure have been devised: (1) diet—adequate calories, adequate protein, vitamins, and minerals in suitable and edible form for the individual person; (2) basic supplement—vitamin A, thiamine, riboflavin, nicotinamide, ascorbic acid, folic acid, vitamin B_{12}, and "activator" when necessary [8]; (3) additional medication—as indicated for coexisting diseases; (4) natural B complex—dried brewers' yeast powder or liver extract.

The basic formula for the treatment of clinical syndromes of mixed vitamin deficiencies is as follows:

	Daily	
Folic acid	5 mg.	
Thiamine	10 mg.	
Nicotinamide	150 mg.	
Riboflavin	10 mg.	
Ascorbic acid	150 mg.	
Vitamin B_{12}	10 to 15 mcg.	(Usually very large amounts are needed unless highly potent activator is used)

Pregnancy, lactation, growth, and aging result in special stresses on nutritional processes of the body. It is well known that improper diet is not the sole cause of dietary deficiency diseases but that impaired absorption from the alimentary tract, failure of utilization by the tissues, and inadequate storage may be contributing factors. I have tried to stress that the problems presented by patients with deficiency diseases vary greatly and that it is necessary for the physician to give careful consideration to the problem presented by each patient and to prescribe the type of therapy best suited for him. The treatment must restore health as quickly as possible and must prevent recurrence of the disease. The physician should prescribe, in addition to specific therapeutic agents, a diet that the patient can eat and digest satisfactorily. Sole reliance on dietary therapy is inadvisable and impractical. It is better to prescribe too much of the therapeutic agents indicated rather than too little, too soon rather than too late. Precise diagnosis allows one to avoid futile treatment.

Use of nutrients to replenish the tissues and to prevent disease is the physician's primary problem. He knows that the nutrients must be supplied for the body from the outside. No statistics can determine the loss or no words can describe the waste that occurs when physicians do not meet this challenge head on. In unpublished observations by Dr. Robert E. Stone and myself, we have shown that synthetic cortisone acetate (Merck), pituitary corticotropin (ACTH) (Armour), and corticotropin zinc phosphate (Organon) each profoundly affects the nutritional processes. Many severely ill patients have been observed to double their food intake soon after taking any one of these substances.

The little that is known and the much that should be known lead to confusing and contradictory information. It should be recalled that the chemical equilibrium of the human body is preserved in many ways and that the maintenance of this equilibrium becomes more and more difficult as the stores of protective substances are depleted by various disease processes. It is clear that many persons have placed too narrow a significance on the importance of nutrition and metabolism in the general physiological process. Patients must have an adquate intake of the needed nutrients, which must be properly assimilated and utilized, if the physician is to be expected to take the best care of them.

620 S. 20th St. (3).

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[8] "Activator" is intrinsic factor that must be given in adequate amount to form conjugate of vitamin B_{12} present.

PATHOGENESIS OF CONSTRICTIVE PERICARDIUM

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We are well conversant with the clinical and anatomic aspects of the fully developed constrictive pericardium, but, so far as I am aware, no study has been made of the pathogenesis or the clinical phases of the early and intermediate stages. Inasmuch as the course of constrictive pericardium covers many years, the opportunity to observe its development from the beginning to the terminal phase must come but rarely. For the most part, we are forced to reconstruct the pathogenesis by a study of the anatomy and incidence of pericardial adhesions under all conditions. Such a program obviously necessitates an inquiry into the still unsettled cause of constrictive pericardium. With these objects in view, I investigated the autopsy findings and some of the clinical aspects of all the cases of adherent pericardium found at post mortem in the Mount Sinai Hospital during the past 25 years.

DEFINITION

A constrictive pericardium is one in which the two layers of the pericardium are universally adherent and thickened in such a way that they interfere with some of the normal functions of the heart, especially diastolic filling. In addition, torsion of the heart clockwise or counterclockwise on its long axis[1] and compression of the entering veins by the adhesions act to produce cardiac insufficiency and/or lessening of the stroke volume.

Although there is no doubt that adhesions between the parietal and visceral layers of the pericardium represent the earliest anatomic phase of constrictive pericardium, a totally adherent pericardium alone does not imperil cardiac function to any appreciable degree. Postmortem records are replete with instances of uncomplicated, complete synechia of both layers even in elderly patients who have never suffered from cardiac distress. This lesion has been termed accretio cordis and, by some observers, has been sharply differentiated from concretio cordis or constrictive pericardium. Such a distinction, I believe, is not justified, and I shall try to show that sometimes accretio cordis is the earlier stage of constrictive pericardium.

Constrictive pericardium is nearly always associated with adhesions from the external surface of the pericardium to the surrounding structures, either the sternum, the adjacent surfaces of the pleura, the diaphragm, or the mediastinum; also, there are more or less generalized pleural adhesions. Frequently the peritoneum is thickened and adherent, especially on the convex surfaces of the liver and spleen. These manifestations can be attributed to a previous polyserositis the causes of which will be discussed later. To what degree the adhesions from the pericardium to the surrounding structure cause interference with function still remains to be determined. Hosler and Williams [2] performed various experiments on dogs; in some, they sewed the parietal pericardium to the diaphragm, and, in others, they sewed the two layers of the pericardium together and then to the diaphragm. In both instances, circulatory disturbances did not ensue, and tolerance to vigorous exercise on a treadmill was normal. The animals were observed over a period of two and a half years. Postmortem examination revealed no cardiac hypertrophy.

Clinically, constrictive pericardium, in its advanced stages, is associated with a rather classic syndrome. The syndrome has been admirably summarized by Burwell and Blalock.[3] 1. The venous pressure is high and persistent. 2. The systolic pressure is low; the pulse pressure is low; and there is pulsus paradoxus. 3. The heart rate is rapid and becomes excessive on exercise. 4. Both fluoroscopy and kymography show a diminution of excursion of the ventricle that is more marked in the right side. 5. The total blood volume is increased. 6. The velocity of blood flow (arm to tongue and arm to carotid) is prolonged. 7. The output of the heart per minute is diminished. To these we may add anasarca, especially ascites. This syndrome is not pathognomonic for constrictive pericardium; it also occurs in cases of tricuspid stenosis and prolonged cardiac tamponade. But it must be emphasized that it only occurs in cases of full-blown constrictive pericardium and, therefore, cannot serve as a diagnostic approach to the early stages. Aside from the pericardial lesion itself, investigations on the finer morbid anatomy of the visceral lesions have been desultory. Emphasis has hitherto been almost entirely centered on the clinical and operative aspects of the disease.

The persistent, high venous pressure so characteristic of constrictive pericardium would lead one to infer that phlebosclerosis must result not only in the systemic but also in the portal veins. Such indeed is the case. Phlebosclerosis of the hepatic veins, which I described many years ago in association with hypertension of the pulmonary circulation,[4] was found in every one of our patients with constrictive pericardium. In a study of congestive splenomegaly,[5] I tried to show that the essential lesions, namely, fibrosis of the pulp (Billroth) cords, sinus hyperplasia, and fibroadenia, occurred only in persistent hypertension of the portal circulation, whether the result of cirrhosis of the liver, obstruction of the portal or splenic veins, or any cardiac disorder in which a persistent venous pressure is demonstrable. The fibrosis of the pulp cords was interpreted as a capillary sclerosis. These morbid changes were also present in every case of advanced constrictive pericardium in this series. In a recent study of cardiac fibrosis (cirrhosis) of the liver,[6] I tried to show that the fibrosis is largely the result of the simultaneous association of prolonged hypertension of both the pulmonary circulation and the portal circulation. As a result, phlebosclerosis of the hepatic veins is engendered with capillary sclerosis of its tributaries, in the outflow tract of the organ, and phlebosclerosis and capillary sclerosis of the tributaries of the portal vein, in the inflow tract. This lesion also occurred in all our cases

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Because of space limitations the bibliographic references have been omitted from THE JOURNAL and will appear in the author's reprints.

of constrictive pericardium. Finally, I have shown [7] that arteriosclerosis of the pulmonary artery and sclerosis of the alveolar capillaries arise only after there has been a persistent hypertension of the pulmonary circulation, as in mitral disease, emphysema, prolonged congestive failure, pleural adhesions, obliterating lesions of the lungs (tuberculosis and silicosis), and communications between the right and left sides of the heart. In consequence of the prolonged, elevated venous pressure, hypertension of the pulmonary circulation must arise in constrictive pericardium. This has been demonstrated by cardiac catheterization.[8] Every case of constrictive pericardium in this series has shown sclerosis of the pulmonary capillaries manifested by thickening and occasionally by hyaline degeneration, with secondary dilatation.

The association of visceral capillary sclerosis with either phlebosclerosis or arteriosclerosis in organs in which afferent or efferent vessels are subjected to increased arterial pressure (lungs, pancreas, and spleen) or to an increased venous pressure (liver) is a universal principle [9] and is the cause of the increased fibrosis in these organs under such conditions. These changes are viewed as compensatory to the increased pressure. These capillary scleroses of the lung, the liver, and the spleen, with their attendant scleroses of the main afferent and/or efferent vessels, are, other factors being excluded, the distinctive features of constrictive pericardium and serve as anatomic criteria to differentiate accretio cordis from constrictive pericardium. The constriction may be just enough to induce capillary sclerosis, and, if the venous hypertension is not excessive and, especially, if it is not too prolonged, the patient may be entirely asymptomatic. The constrictive pericardium thus becomes an anatomic but not necessarily a clinical entity.

This differentiation in terms of morbid anatomy is emphasized because constrictive pericardium is currently viewed as a combination of both anatomic and clinical characters, and its diagnosis is not considered valid unless both are present.

ETIOLOGY

Inasmuch as the cause of constrictive pericardium is closely allied to that of adherent pericardium, I investigated the cause of all our cases of adherent pericardium. Only the cases which the adhesion was dense and scarlike were included; those in which it was fresh or intermediate were omitted. In 9,618 autopsies, such adherent pericardiums occurred 130 times, or in 1.4%.

On review of these 130 cases, it was found that the causes of adherent pericardium, complete or partial, were rheumatic fever, 46.2%; coronary thrombosis, 18.5%; tuberculosis, 3.1%; no apparent cause (as determined by history and autopsy), 25.5%; polyserositis with indeterminate endocarditis, 4.5%; polyserositis without endocarditis (associated with a typical scleroderma), 0.7%; and syphilis, 1.5%. Of the syphilitic patients, the Wassermann reaction of one was 4+, and the other had a typical hepar lobatum. The pericardial lesions were not structurally syphilitic. In the same 130 cases, the pericardium was completely adherent in 71 (54.6%). The causes, in this group included rheumatic fever, (38), 53.5%; coronary thrombosis (6), 8.5%; tuberculosis (3), 4.2%; no apparent cause (19), 26.8%; polyserositis with indeterminate endocarditis (4), 5.6%; and miscellaneous (1), 1.4%. If rheumatic fever is considered to be a cause of a polyserositis, the latter caused complete obliteration of the pericardial sac in 64.4% of all cases.

The term polyserositis requires a stricter definition, because it has been applied indiscriminately to include both exudates and transudates. I have limited the term to include only those that are strictly inflammatory. Of the six cases, five were classified as indeterminate or atypical endocarditis as described by Libman and Sacks.[10] In one, polyserositis was associated with a scleroderma but not with endocarditis. It is worthy of note that the pericardium, pleurae, and peritoneum were involved in six. If we include the cases of tuberculous pericarditis and rheumatic fever, which strictly speaking may be classified as polyserositis since all three serous cavities were affected, we note that polyserositis, exclusive of instances in which its origin is unknown, accounts for a completely adherent pericardium in 64.4%. I think that polyserositis of unknown origin associated with the type of endocarditis described by Libman and Sacks is important because it may be one of the causes of a constrictive pericardium, an observation that has not been made before. In one of my cases, clinical and anatomic constrictive pericardium was previously classified as of unknown origin. Postmortem observations on cases of endocarditis described by Libman and Sacks, whether associated with lupus erythematosus or not, reveal an unusually intense polyserositis characterized by an unusual quantity of gelatinous mucoid exudate in the pericardium and pleurae and on the surface of the liver and spleen. It is very possible that healing of such a polyserositis may result in development of the anatomic characteristics of constrictive pericardium. Obviously, only a postmortem examination can disclose this variety of polyserositis, and, therefore, no etiological classification of constrictive pericardium can be completely valid without a study of the morbid anatomy of the cardiac valves.

Of the 130 cases of adherent pericardium, a constrictive pericardium in an anatomic but not necessarily in a clinical sense occurred in 7, or 5.4%. Only four conformed to the classic clinical and anatomic criteria of the disease; that is, they represented the most advanced stages of constrictive pericardium. The remaining three cases may be viewed as examples of the early phases; first, because anatomically they possessed many characteristics of constrictive pericardium and, second, because they showed the characteristic capillary sclerosis in the lungs, liver, and spleen described previously.

REPORT OF CASES

CASE 1.—A 49-year-old woman gave a history of ascites, dyspnea, and anasarca that had been present for three years. She had had many paracenteses. Physical examination showed marked ascites and venous pressure of 16.5 cm. H_2O that rose to 22 mm. on right upper quadrant pressure. The circulation time was 18 seconds and the ether time 8 seconds. Pericardiectomy was performed, with perforation of the right ventricle. Hemorrhage occurred, and death followed.

Autopsy showed polyserositis; total adhesive pericarditis, with calcification; both pleurae adherent and thickened; chronic perihepatitis; chronic perisplenitis; thickening of parietal peritoneum; ascites; phlebosclerosis of the vena cava and hepatic veins; cardiac fibrosis of the liver; chronic passive congestion of the spleen, with splenomegaly; bronchopneumonia; and varicose veins of the mesentery of the small intestine. The heart weighed 425 gm.; the right auricle was slightly dilated; and the left ventricle was contracted. The pericardium was thick and calcified throughout. The spleen weighed 40 gm. The liver weighed 1,490 gm. and was fibrotic.

Microscopic examination revealed that the alveolar capillaries of the lungs were thickened and dilated (capillary sclerosis); many heart failure cells. The pericardium was very thick, hyalinized, and calcified. The liver showed advanced cardiac fibrosis, and the intima of the hepatic vein and vena cava was greatly thickened. The spleen showed a typical early phase of congestive splenomegaly, namely, sinus hyperplasia, fibrosis of pulp cords, fibroadenia; and a thickened and hyalinized capsule.

This patient presented the typical clinical and anatomic manifestations of a constrictive pericardium. The history and autopsy, however, revealed no obvious cause.

CASE 2.—At the age of 24, this man had severe upper quadrant pain with fever. On exploratory laparotomy, the gallbladder was found to be normal. Eight months later, he was reexplored because of severe pain in the right lower quadrant. Only a much thickened capsule of the liver (Zuckerguss) and some abdominal fluid were found. At the age of 39, the man was hospitalized because of ascites and bilateral pleural effusions. The venous pressure was 25 cm. H_2O. Pericardiectomy was performed, but the patient died two days later.

The findings at autopsy included constrictive pericardium; perforation of the right ventricle; pleural adhesions and thickening; arteriosclerosis of pulmonary artery; cardiac fibrosis and chronic congestion of the liver; marked hypertrophy and dilatation of both auricles; hypertrophy of both ventricles; intimal thickening of hepatic veins and superior and inferior vena cava; anasarca; hydrothorax; indeterminate endocarditis of aortic valve; and bilateral healed apical tuberculosis. The pericardium was dense, firm, and 1 cm. thick. The right auricle was greatly dilated and hypertrophied; the tricuspid valve was dilated. On the edge and anterior surface of the right posterior aortic cusp there was a gray-pink, wart-like nodule that measured 3 by 2 mm.

Microscopic examination of the lungs showed capillary sclerosis with many heart failure cells. The pericardium was greatly thickened and hyalinized. The wart-like nodule at the aortic valve was densely fibrous. The liver showed centrolobular necrosis, and the intima of the hepatic veins and inferior vena cava was markedly thickened. The spleen showed sinus hyperplasia, fibrosis of the pulp cords, and lymphadenia. The capsule was thickened. This patient presented a typical clinical syndrome of constrictive pericardium confirmed both by operation and autopsy, with typical pulmonary capillary sclerosis, cardiac fibrosis of the liver, phlebosclerosis of hepatic veins and inferior vena cava, and congestive splenomegaly. The indeterminate endocarditis described by Libman and Sacks leads to the suspicion that there had been an asymptomatic nonspecific polyserositis in the past, an association that is quite common.

CASE 3.—This 25-year-old woman had had "heart trouble" since youth, with numerous episodes of congestive failure. A roentgenogram of the heart showed extensive calcification of the pericardium. Pericardiectomy was performed twice, four and two years earlier, with some relief after each operation. Eventually the patient died in congestive failure.

Autopsy, after resection of the sternum and pericardiectomy, revealed rheumatic heart disease; chronic adhesive calcified pericardium; chronic valvulitis of the mitral valve, with stenosis and insufficiency; chronic valvulitis of the aortic and tricuspid valves; dilatation and hypertrophy of both auricles and ventricles; bilateral pleural adhesions; chronic, passive congestion of the viscera; bilateral pleural effusion; ascites; chronic perihepatitis and perisplenitis; arteriosclerosis of the pulmonary artery; and cardiac fibrosis of the liver. The heart was much enlarged. The pericardium averaged 1 cm. in thickness and was calcified throughout. The pericardium was adherent to the anterior chest wall, adjacent pleurae, and mediastinum. The valves showed lesions typical of rheumatic fever, but no Aschoff's nodes were found. The alveolar walls of the lungs showed capillary sclerosis; the alveoli contained heart failure cells. The liver showed severe cardiac fibrosis. The spleen showed fibrosis of the pulp cords and some sinus hyperplasia. There was marked perisplenitis and perihepatitis.

This woman presented the clinical manifestations of constrictive pericardium and multiple valvulitis of rheumatic origin. Microscopic examination showed capillary sclerosis of the lungs, the liver (cardiac fibrosis), and the spleen (congestive splenomegaly). To what extent these lesions were the result of the constructive pericardium or of the associated valvular disease, it is impossible to say. In all probability, one was superimposed on the other as suggested by the severity of the microscopic lesions.

CASE 4.—The patient was a physician in whom pulmonary tuberculosis and a pericardial effusion developed eight months before his hospitalization. The liver and spleen were enlarged. The venous pressure was 23 cm. H_2O. Pericardiotomy and pericardiectomy were performed during which an enormously thick pericardium was removed. Biopsy from the anterior surface of the pericardium demonstrated tuberculosis. After the operation, the venous pressure dropped to 5.5 cm. H_2O; later, an empyema was drained. Continuous fever and cachexia developed, and the patient died.

Autopsy, seven and one-half months after partial pericardiectomy and pericardiotomy, revealed chronic tuberculous pericarditis; miliary tuberculosis of the lungs, kidneys, and spleen; extensive bilateral pleural adhesions; hypertrophy of the left side of the heart and arteriosclerosis of the aorta and systemic arteries (the protocol did not mention whether the pulmonary artery was arteriosclerotic); granular perihepatitis; hydronephrosis and caseous tuberculosis of left kidney; tuberculosis of mediastinal lymph nodes; and splenomegaly. The heart was enlarged, and there was marked hypertrophy of the right side of the heart and of the left ventricle. The pericardial sac was distended. The wall was between 5 and 7 mm. thick. The external surface was adherent to the adjacent pleura. The capillaries of the pulmonary alveolar walls were dilated and thickened, and the alveoli contained heart failure cells. The surface of the liver was covered with fibrous deposits and showed central congestion. The portal spaces were filled with inflammatory cells. The spleen showed some sinus hyperplasia and slight fibrosis of the pulp cords. All the organs showed many tubercles.

As in case 3, the clinical phenomena were so dominated by tuberculosis that any symptoms referable to constrictive pericardium were largely suppressed; nevertheless, capillary sclerosis in the lung and in the spleen indicated that constriction of the pericardium was active.

CASE 5.—As a child, this 14-year-old boy had measles and frequent colds. He had always been underdeveloped and had had diarrhea since the age of seven. The stools were foamy and bulky, and the boy had secondary anemia. He was admitted to the hospital one year before the present admission. At that time, his condition improved on a diet high in carbohydrate and low in fat content supplemented with iron and liver extract. His liver then was large, and his spleen was palpable two fingerbreadths below the free border of the ribs. His present admission followed an appendectomy performed five days previously. He died with symptoms of intestinal obstruction.

Autopsy showed acute ileus caused by an omental band; chronic ulcerative colitis; parietal thrombi in the superior mesenteric and portal veins; chronic interstitial hepatitis; splenomegaly (the spleen weighed 420 gm.); and chronic adhesive pericarditis, with phlebosclerosis of the inferior vena cava and hepatic veins. The heart was normal in size, and the valves were intact. The pericardium was 0.5 cm. thick, and the pericardial cavity was completely obliterated. The lungs showed dilatation and thickening of the alveolar capillaries and a few heart failure cells in the alveoli. The liver showed phlebosclerosis of the hepatic veins and inferior vena cava and slight interstitial hepatitis. The spleen showed fibrosis of the pulp cords, sinus hyperplasia, and marked congestion. There were numerous fibrous thrombi in the submucosal vessels of the large intestine with beginning organization and large parietal thrombi in the superior mesenteric and portal veins.

The pericardial lesion was surely independent of the ulcerative colitis. While symptomless, the thickened and totally adherent pericardium must have caused hypertension of the pulmonary circulation as manifested by the pulmonary capillary sclerosis and the heart failure cells. Also there must have been persistent peripheral venous pressure as evidenced by phlebosclerosis of the hepatic veins and of the inferior vena cava and hypertension of the portal circulation as manifested by an early, congestive splenomegaly. The slight interstitial hepatitis was probably of nutritional origin. Had the boy lived, the probability is strong that the clinical evidences of an advanced constrictive pericardium would eventually have developed. No cause for the totally adherent pericardium was discovered.

CASE 6.—A 51-year-old man had pain in the chest with dyspnea, orthopnea, and cyanosis, four weeks before admission. The blood pressure was 124/70 mm. Hg. The liver extended five fingerbreadths below the free border of the ribs. The venous pressure was 18 cm. H_2O. The electrocardiogram resembled that of a coronary closure. The patient was treated with mercurial diuretics but gave no response.

At autopsy the pericardium was completely obliterated and partially calcified. There was primary carcinoma of the liver; carcinomatous invasion of the right hepatic and the portal vein; massive occlusion of the right pulmonary artery; multiple emboli in the lungs; dilatation of the right auricle and ventricle; cardiac fibrosis of the liver; multiple pleural adhesions; and metastatic nodules in both lungs. The pericardium was greatly thickened and hyalinized and contained a calcific girdle 0.5 cm. thick that enveloped the middle and much of the ventricular portion of the heart. Except for a note of the presence of emboli, the pulmonary arteries were not described in the protocol.

On microscopic examination, the pulmonary capillaries were dilated and tortuous; the liver showed cardiac fibrosis and phlebosclerosis of the hepatic veins; and the spleen showed congestion but no congestive splenomegaly.

This case may be interpreted as one of anatomic constrictive pericardium of unknown origin, and, although symptomless, it was sufficient to cause hypertension of the pulmonary circulation as manifested by capillary sclerosis of the lungs and persistent systemic venous hypertension as evidenced by cardiac fibrosis of the liver and phlebosclerosis of the hepatic veins. Had death caused by carcinoma not intervened, I believe that the clinical manifestations of a constrictive pericardium would have developed. No cause for the pericardial lesion was discovered.

CASE 7.—A 17-year-old boy had had weakness for three months, cough for three weeks, and fever and signs of fluid in both sides of the chest and abdomen. The spleen was palpable. Twelve weeks before his admission, his family physician discovered signs suggestive of pericarditis. He had dyspnea on exertion, orthopnea, and edema of the lower extremities. Congestive failure developed, and the patient died.

Autopsy revealed bilateral pleural effusion; ascites; complete obliteration of pericardial sac; tuberculous pericarditis; disseminated tuberculosis of the lungs, spleen, kidneys, and lymph nodes; chronic, passive congestion of the liver and phlebosclerosis of the superior and inferior vena cava and of the hepatic veins; arteriosclerosis of the pulmonary artery; mediastinal adhesions; and peritoneal tuberculosis. The pericardium averaged 1.5 cm. in thickness. It was hyalinized, and, on its inner aspect, there were many caseating tubercles.

Microscopically, aside from tuberculosis, the lungs showed sclerosis of the alveolar capillaries; the liver showed central congestion; and there was phlebosclerosis of the hepatic veins and of the superior and inferior vena cava. The spleen showed sinus hyperplasia and fibrosis of the pulp cords; in other words, congestive splenomegaly.

I believe this case demonstrates anatomically an early, constrictive pericardium. The presence of pulmonary arteriosclerosis and alveolar capillary sclerosis shows that there was prolonged hypertension of the pulmonary circuit. Phlebosclerosis of the hepatic veins and of the inferior vena cava and the early phase of congestive splenomegaly all indicated that there was sustained peripheral and portal venous pressure. The clinical phenomena were so masked by tuberculosis that it is impossible to say to what extent the constrictive pericardium was responsible for the symptoms.

COMMENT

An analysis of these seven cases provokes a number of interesting deductions. First, it is obvious that constrictive pericardium, in the anatomic sense, does not always give rise to the classic clinical phenomena. Inasmuch as the clinical evidences are mostly the results of the morbid visceral anatomy as revealed in the vascular and capillary scleroses, especially of the lung, the liver, and the spleen, induced by prolonged venous hypertension both systemic and portal, one may conclude that the intensity of the clinical phenomena is largely dependent on the duration of venous hypertension. The degree of venous hypertension is probably of less importance. I have shown in studies on congestive splenomegaly [5] and cardiac fibrosis of the liver [6] that these lesions are dependent more on the duration than on the severity of venous hypertension. Second, in regard to etiology, my observations are not entirely in accord with those of other observers. In three cases, no cause was obtained from the history or at autopsy. One was associated with rheumatic fever, and, while there is no absolute proof that the constrictive pericardium was a result of this disorder, the probability is strong that it was the result of a rheumatic polyserositis. Two cases were undoubtedly caused by tuberculosis, and, in one, the presence of an indeterminate endocarditis of the type described by Libman and Sacks suggests that a nonspecific polyserositis preceded the constrictive pericardium.

Paul, Castleman, and White [11] described 53 cases. In 56.5%, no cause was discovered. Tuberculosis was demonstrated in 17%. There was no sharp distinction between the microscopic picture of healed tuberculous pericarditis and so-called idiopathic constrictive pericardium. In two cases, healing tubercles were found during surgery, but no evidence of tuberculosis was found at post mortem two and three years later. In none of the 53 cases was there a history of rheumatic fever. In three cases there was a history suggestive of pericarditis some years previously.

Martensen and Warburg [12] report rheumatic fever in 2 out of 25 cases. Tuberculosis was verified by histological examination in three cases; in two other cases, it was probable. In two, constrictive pericardium was due to trauma; in one, to blunt violence and, in the second, to a gunshot wound. In the remaining cases, the cause was obscure. In this connection, Strauss [13] reports a case in which constrictive pericardium was due to a needle left in the pericardium for seven years after diagnostic aspiration. Joest [14] states that foreign bodies have been ingested by cows and, after ulcerating through the diaphragm, have come to rest in the pericardial sac and produce a septic inflammation with total synechiae, hyalinization, and calcification resulting in a constrictive pericardium. Blalock and Burwell [15] found the tubercle bacillus in 21 of 28 cases in which the cause could be established by operation, aspiration, or autopsy. Staphylococci were found in 3 of the 28. In an earlier publication,[3] these same authors found not a single instance caused by rheumatic fever. McKissick [16] reports 20 cases of which he regarded 8 to be caused by tuberculosis as evidenced by a history of prolonged exposure to tuberculosis, by biopsy of the pericardial scar, or by the presence of tuberculosis in other sites, such as the bones, lymph nodes, or lungs. In the other 12, the cause was unknown. McKissick also reports verification by biopsy of a tuberculous pericardial effusion that, after 20 years, developed into a constrictive pericardium. Of 24 cases, Harrington [17] found tuberculosis confirmed by biopsy in 5. In the remaining 19, the cause was unknown. Sellars [18] found tuberculosis in 16 out of 20 cases of constrictive pericardium. In a later publication,[19] he described 18 cases of tuberculous pericarditis. In 4 of these, no other serous cavity was affected, and, in 16, constrictive pericardium developed.

Apparently there is a wide discrepancy in these reports with respect to the incidence of the various causes. There is no doubt that tuberculosis is a fairly common cause and that probably over half the cases reveal no ascribable cause. There is a very wide divergence with respect to the incidence of rheumatic fever as a cause. In one of our seven cases, rheumatic valvulitis was found at autopsy. The reason our findings differ from those of other workers with respect to etiology is perhaps that we have investigated only postmortem material. Our study does not answer the question of why certain cases of polyserositis result in constrictive pericardium and why others do not. The probability is strong that the result depends on a number of factors; the intensity of primary polyserositis, its duration, and the reactive potentialities of the organism.

SUMMARY AND CONCLUSIONS

The pathogenesis of seven cases of constrictive pericardium, which came to postmortem examination, is described. In four of these (cases 1 through 4), the classic clinical signs and symptoms of constrictive pericardium were apparent. Most of the clinical phenomena may be attributed to sustained hypertension of both the pulmonary circulation and the peripheral venous system, including the portal circulation. As a result of sustained hypertension, there is arteriosclerosis of the pulmonary artery, sclerosis of the vena cava and hepatic veins, and sclerosis of the tributary capillaries of the lungs, liver, and spleen, with the development of sclerosis of the pulmonary capillaries, cardiac fibrosis of the liver, and an early phase of congestive splenomegaly. Three patients (cases 5 through 7) lacked many of the signs and symptoms of contrictive pericardium but had many of the anatomic characters, namely, an unusually thick, totally adherent pericardium. In one case, the pericardium showed considerable calcification and, in a second, complete hyalinization. In addition, there were extensive adhesions to the surrounding pleurae, arteriosclerosis of the pulmonary artery, perihepatitis and perisplenitis, and phlebosclerosis of the hepatic veins and vena cava. There was sclerosis of the pulmonary capillaries in two cases, cardiac fibrosis in one, and an early phase of congestive splenomegaly in two. Three cases may be viewed as disclosing potential constrictive pericardium; in other words, as an earlier phase. Etiologically constrictive pericardium is one of the late results of polyserositis whether from tuberculosis or rheumatic fever or associated with an indeterminate endocarditis, possibly of the type described by Libman and Sacks. Only a postmortem examination is decisive in determining the precise cause.

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PRIVATE PRACTICE IN SMALL INDUSTRY

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For too many years an ignored paradox in American industry has encouraged an unfortunate parallel in American medicine. In this age of huge corporate manufacturing organizations, only recently has the vast size and great importance of so-called small industries been recognized. In government and business much has been said about the necessity for aiding and preserving the "little fellow," but, because of scattered location and a genius for individual differences, the "little fellow" has not submitted well to organization for aid.

In the field of industrial medicine it has been possible to develop highly coordinated and skilfully staffed medical, surgical, and health conservation programs for big industrial groupings. Similar services have not been readily assembled for small industry.[1] Brief reference to figures shows both the urgency and size of the "small plant problem." National statistics have been drawn together by Klem and McKiever [2]; from this source the table in the next column is taken. The table shows that 99% of employee organizations have less than 500 persons, and 70% of total employees are found in so-called small plants. With minor variations these percentages may be applied to most states and large and small cities. In Portland, Ore., in 1947,[3] with a population of 350,000, 80% of the workers were employed in units of less than 500 persons and 55% in units smaller than 100; these figures are substantially the same today.

Size of Class (No. of Employees)	Reporting Units		Workers	
	No. (in Thousands)	Percentage	No. (in Thousands)	Percentage
All units	2,734.2	100.00	35,805	100.00
1 to 49	2,637.9	96.48	14,219	39.71
50 to 499	88.9	3.25	11,085	30.96
500 to 999	4.4	0.16	3,012	8.41
1,000 and over	3.0	0.11	7,489	20.91

WHAT IS THE SMALL INDUSTRY MEDICAL PROBLEM?

Accident rates are more than twice as high in small plants, and sickness disability rates are relatively unimproved in such units. Medical consultation is not accessible and infrequently used by the small plant in the fields of placement examination, job transfer, rehabilitation, psychological evaluation, case finding, and utilization of the aging worker. These and other random

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1. McCahan, J. F.: Medicine + Industry = Occupational Health, New England J. Med. **247**: 470-472 (Sept. 25) 1952.

2. Klem, M. C., and McKiever, M. F.: Small Plant Health and Medical Programs, Bulletin 215, United States Public Health Service, 1952.

3. Rieke, F. E.: Evolution of Small Plant Health Service as a Private Practice, Indust. Med. **19**: 301-312 (July) 1950.

statements are frequently applied, and all are readily substantiated.

Definition of the problem is complicated by absence of a suitable description of the small plant. For my purpose it can be described as the employee group, too small to have afforded or provided physician or nurse service, predominantly composed of less than 250 persons. It is more apt to be a group numbering 20 to 100 employees.

In many places and publications one can find excellent descriptions of industrial medical and health services. When one attempts to apply these services, prohibitive difficulties have been encountered. Most troublesome features of the small plant health problem are to be found in these areas: (1) unawareness that private physicians, primarily in general practice, are in fact the only existing industrial service for most small plants, (2) unfamiliarity of private medical practitioners with industrial health needs and methods, (3) disinterest in improvement of preventive and therapeutic services for industry by these same private practitioners, (4) unfamiliarity of small plant owners with such services and ineptitude at searching for same, (5) unwillingness of owners and many insurance carriers to spend to prevent and conserve in lieu of expenditure to correct illness and injury, (6) failure of community medical agencies and services to foster and coordinate physician-employer ventures in this realm, and (7) a lingering attitude among physicians that service in industry is not as noble, worthy, or ethical as other forms of medical services.

There is much hopeful development as well as discouraging apathy in all of these zones. In an attempt to illuminate problems, methods, and goals and encourage others in private practice to extend efforts to small plants, the following plan is recorded from work in small industries at Portland, Ore. An attempt will be made to relate our experience to the difficulties mentioned.

GENERAL PLAN

In previous articles [4] wartime and postwar transition in Portland's industries was described with its shift of manpower from six huge shipyards to thousands of smaller employee groupings. After the war, in an effort to continue "large industry" medical services akin to those in the war industries, two industrial zone dispensaries were opened in the center of shop areas. These have been operated as a private venture, staffed with physicians and graduate nurses, and maintained solely to provide the services needed by small plants in the surrounding territory. They have not ventured into other medical fields.

Major emphasis has centered on: (1) emergency treatment of industrial injury, (2) diagnosis of minor and incipient ailments and wide referral to private physicians of those with nonoccupational illness, (3) placement and other special examinations relating to job problems and toxicology, (4) collection of industrial medical and toxicological data as reference material for plants, physicians, and nurses, (5) rehabilitation for injured and ill, (6) case finding through examination and survey, (7) plant sanitation, industrial hygiene control, and accident prevention, and (8) consultation with any group seeking help in the improvement of employee health and safety.

In diagnosis and treatment of more extensive industrial injury and occupational illness, full use has been made of a local general hospital and consulting services of all available medical specialties. A high degree of cooperation has been forthcoming from public and private health agencies, most insurance carriers, and most employers. Employee response has varied from apathetic to enthusiastic; repeating business has been gratifyingly frequent.

With the exception of those sent by the employer for placement examination, the employee has not been obliged to come to the dispensaries for services. Absence of compulsion or contractual obligation in either direction has been most worthwhile, obviating abuses ofttimes arising in contract practice. Fees for service are levied against insurance carriers, employers, or the patient, depending on nature of the ailment. Lack of a prearranged retainer has, of course, been a barrier to full use of consultation by small operators.

PROBLEM AREAS

Unfamiliarity of Profession.—As inferred, the majority, if not all, of the industrial medical service reaching employees in small plants comes from physicians devoting most of their time to general practice or the specialties, and certainly not to the specialty of industrial medicine. In the smaller communities physicians often know the details of local industry. In medium-sized and larger cities this is not usually the case. Employers and workers repeatedly complain that physicians in these localities show little awareness of job requirements, injuring forces, chemistry of the job, the impact of illness on the worker, and the dislocation of production caused by his absence. In the dispensaries in Portland there has been some difficulty utilizing physicians as currently prepared for any but the most limited work in relating medical and health factors to demands of the job. Preparation in surgical trauma is good, but work in rehabilitation and conditioning of patients for return to work are unfamiliar to many. It seems that medical schools have not yet managed to acquaint those entering practice with the needs and methods of industrial medicine, a rather glaring deficiency that most schools are doing little to overcome. There is also an evident need for extensive effort to acquaint those already in practice with the same subjects.

Disinterest of Practitioners.—Lack of interest of practitioners in an improved industrial service stems from both physical separation in point of geography and in a fundamental preoccupation with the individual person removed from his environment. Rarely do medical buildings adjoin the industrial work place, and rarer still do physicians visit the work place. Most physicians are greatly stimulated by such visits, and service to the employee-patient is materially improved when his physician knows the daily environment as well as specific chemicals, processes, and hazards in this environment. The employer and employee are pleased when a physician pays a "house call" to his patient's work place. Furthermore, the employer is a willing ally in the ferreting out of noxious occupational agents and assisting in recuperation and rehabilitation when the informed physician phones or writes, seeking help for his patient. Even the unglamorous physical examination gains interest when the physician knows that the worker may be exposed to certain extremely toxic chemicals, or required to make hundreds of exact spatial movements per hour or to drive a 30 ton truck on narrow roads in reduced illumination for six or more hours nightly. The influence of aggravating noise, constant danger, dulling monotony of work, or galling supervision on the psychosomatic disease can be weighed only by the physician interested enough to know of their existence in the patient's daily life.

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[4] Rieke, F. E.: Health Service for Very Small Plants Offered Through Private Practice, Occup. Health **12**: 127-129 (Aug.) 1952. Rieke.[1]

Unfamiliarity of Small Plant Owners.—With rare exceptions small plant operators have had no experience with industrial service. When the service exists their desire to purchase it must be considered very low. After six years in the field, there are only small beginnings in use of preventive services other than those in the early care of trauma. The beginnings exist, however. Through observation of our work for larger employee groups, through education by employer organizations, by the chamber of commerce, and by the state board of health, the "little fellows" are becoming aware of their needs and are seeking examination and consultative services. The medical society's role in this regard will be mentioned later.

Failure to Pay for Values Received.—The small plant operator rarely has a budget, to say nothing of planned financial provision, for medical services. Most are unfamiliar even with the cost of accidents as represented by premiums to insurance carriers. Most insurance carriers have not successfully educated the smaller plants in the need for expenditure on preventive medical services. Thus far, so-called union health plans have been equally unproductive in this direction in the Portland area. Insistence by many insurance carriers in industry that their insured merit a reduction in fees by treating physicians has gone far to dampen medical enthusiasm for industrial service. Absence in local offices of insurance carriers of medical consultants and the routine processing of bills and case reports by clerical personnel utterly unfamiliar with medical methods and problems further alienate the interested physician. A further insistence by employers on a very low fee for examination of the employee imparts the conviction to both physician and employee that a competent and searching examination is not desired. On the other hand, the recent trend for employers to ask and pay for a very thorough examination, the earnest effort of many insurance carriers to secure fullest treatment and rehabilitation of the injured, and efforts to arrive at mutually agreeable fees by conference with medical societies all warm the atmosphere in which medical service is delivered and provide a healthier culture medium for growth of interest and fuller physician service. In general, physicians believe that industry deserves the best service available, delivered at fees on a par with those charged other responsible persons and groups in the community. When industrial services are justly valued accelerated growth can be expected. Parenthetically, a most useful summary has been prepared recently by Dr. R. B. O'Connor[5] listing types, costs, and results to be expected in small plant health service.

Failure of Community Group Leadership.—Until recently too few medical societies have exerted leadership or encouraged extension of preventive services in industrial areas. At times there has been actual criticism and obstruction of those toiling in this field. Under the spur of the Council on Industrial Health of the American Medical Association this attitude is changing. Local and state societies have established industrial health committees, and community health councils number many representatives from management and labor.

In Portland a joint committee of the state medical society and the chamber of commerce has held one larger dinner meeting for employers and insurance, medical, nursing, and safety workers, and planning is underway for an area-wide annual conference on industrial health and safety. It is hoped that this may emulate the successful Houston, Texas, conference and other similar efforts. The Oregon state medical society has appointed a liaison committee to meet with representatives of the insurance industry, and it is hoped that this may prove to be an avenue for mutual instruction in the duties and functions of physicians and insurance carriers in their relation to all insured. One of the honored 1952 Sommer Memorial Lectureship speakers brought semiyearly to Portland to address the medical profession was Dr. Rutherford Johnstone, who spoke to large audiences on occupational disease in its various relationships. He stirred a genuine interest among specialists and general practitioners alike.

Recent conferences between the American Medical Association Industrial Council and the Academy of General Practice have clearly illuminated the large potentials for service by this group in industry. A plan is under consideration to include considerable industrial information in postgraduate activities of the academy, and this emphasis will certainly expedite wider participation by its membership.

ETHICAL PRACTICE IN INDUSTRY

Ethics of American medicine exist and are formulated to guarantee a continuing high level of honest, selfless, and devoted service to the public. As times change, methods of practice necessarily change. It is well to remember, therefore, that what is new or strange is not necessarily unethical. As medicine has built on its foundations in the basic sciences, it has added to the bacterial concept of disease and aseptic techniques of surgery the sure knowledge that physical and mental health are best sustained by prevention bulwarked by ever more effective therapeutics. For preventive medicine to be effective it must reach well persons as certainly as the ill. To do this the practitioner must often be the aggressor, and aggressiveness in medicine is frequently considered unethical and may be deleterious. It has been felt, however, that the private practitioner who is critical of those who carry the preventive fight against disease and injury into the limelight of industry is guilty of sins of omission in his too great concentration on treatment of disease. It is hoped that he too will go on the offensive in psychosomatics, case finding, health education, and leadership for health.

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[5] O'Connor, R. B.: Small Plant Health Programs—Types, Costs and Results, Occup. Health 12: 123 (Aug.) 1952.

Contacts with industry are an ethical extension and improvement of office practice. There is just criticism of those who use industry only as a builder and feeder of practice. Uncondoned also is the pirating of selected patients through industrial contacts. Part of industry's resentment toward medicine arises because many physicians have built a practice in industry and then withdrawn further service. It is to be hoped that private practitioners will increase rather than diminish efforts through industry.

Contacts with employee groups are legitimately made in many ways. In Portland the dispensary's services are introduced through explanatory talks at business and service clubs, patients served in the dispensary and hospital, and other physicians, health agencies, and insurance carriers. Requests are welcomed for new or different services whether for flight or truck operators, lead workers, or meat processors. The work place is visited, and, if puzzled about diagnosis or unsatisfied about work situations, the physicians go to the shop on their own initiative. This is well received and is considered good ethics, for in no other way can the patient's problem be solved. Under patterns described, wherein the medical society and industry are joining hands to become acquainted, worry over legitimacy of industrial service and ethical contacts will be greatly ameliorated.

COMMENT

There are those today who have great plans for the private practice of medicine, whether it be to make it "free," to finance it by prepayment only, to furnish it by groups only, or whatever. I am not among these; I subscribe to the theme so well phrased by Alexander Woollcott when he said, "For the architects of any utopia are inconvenienced by discovery (usually at the last minute) that the human race is not, as at present matured, equipped for the exacting role forced upon it by citizenship in Utopia."

I am impressed by the truly remarkable viability and flexibility of American free enterprise as exemplified medically in the private practitioner. His system is indigenous and for the most part well adapted to local needs. Changing needs have been well met before, and it is reasonable to assume that as methods are improved and needs clarified the small plant industrial problem will be well solved by the practicing American physician.

SUMMARY AND CONCLUSIONS

A private practice serving the medical needs of many small plants in an American city of 350,000 is described. It is observed that the small plant problem can be met best by enlargement of the scope of private practice to fill the preventive and treatment needs of employers and employees. This will require an interested curiosity by practitioners and improved cooperation with public and private health agencies. Expansion of educational activities is urgently needed by medical schools and physician associations to familiarize physicians with industry's needs and methods to fill them. Similarly, wide increase of joint medical society–industry efforts will aid small plant ownership to utilize the private practitioner more effectively. A more honest financial return to physicians in the service of industry will go far to win friends and create a climate for growth. Medical society sponsorship of service for industry will remove many doubts about the ethics involved.

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SURGICAL SEPARATION IN CRANIOPAGUS

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On Sept. 16, 1951, craniopagus twins were born in Rock Island, Ill. The record of the birth and course during the first six weeks has been adequately described by Durr.[1] The present preliminary communication will give a résumé of the sequence of events that led to the eventual surgical separation of the twins and of the postoperative course.

The babies were admitted to the University of Illinois Hospitals on Oct. 2, 1951. They were in a conjoined state of craniopagus parietalis (fig. 1). Their general condition was good, with normal increments of growth and neuromuscular development. Their measurements on the Stuart-Vickers tables ranged from the 25th to the 50th percentile for their age. The babies had obviously independent activities; they slept at different times, could eat at separate times, made separate movements, had independent bowel and bladder functions, and had individual body temperatures. In all, there was clinical evidence of two autonomous nervous systems. There was a mirror-imaged moderate asymmetry of the head (including the face), the right side of R. L. B. and the left side of R. D. B. being more prominent.

Both babies had systolic murmurs, which were loudest to the left of the sternum at the level of the third interspace. It was considerably louder in intensity in R. D. B. There was no evidence of impaired cardiac function. The left side of the chest of R. D. B. was larger—corresponding to the asymmetry of the face. This was mirrored in R. L. B. The heart sizes were normal. The murmurs were believed to represent an intraventricular septal defect.

The problem at hand was whether or not a surgical separation could be attempted. Unfortunately there was little material in the literature that was of any pertinent

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The drawings and photographs were prepared in the Illustration Studios of the University of Illinois.

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[1] Durr, S. P.: Craniopagus Twins, J. A. M. A. 150:93 (Sept. 13) 1952.

value. The few previous attempts at separation of other craniopagus twins had failed.

Before an actual separation could be attempted, the following basic questions had to be answered: 1. Could the babies withstand numerous diagnostic and operative procedures? 2. Were the brains separate? 3. Was there a dural septum? 4. Were the cerebral arteries separate? 5. Were the venous sinuses separate? 6. Could the anticipated defects in the scalp and skull be closed? Except for the obvious malformation of a conjoined state, results of all studies, including roentgen examination of the chests and long bones, blood studies, and urinalyses, were within normal limits. The systolic murmurs of neither child appeared to be of any functional significance; their general physical condition was good.

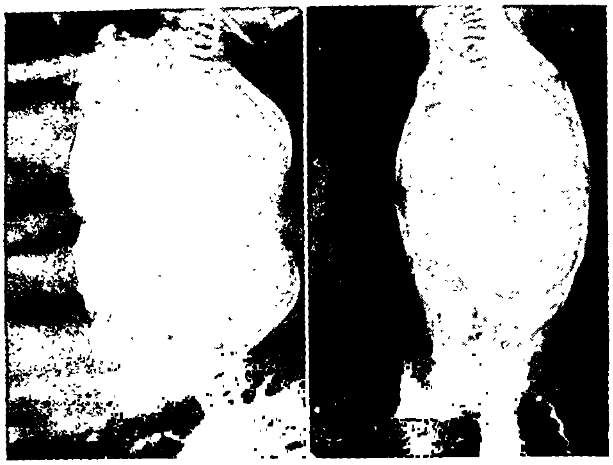

Fig. 1.—Roentgenograms of the skull made at the age of 5 days. Note absence of bony septum and over-riding of parietal bones in the anteroposterior view.

Clinical observation of independent activity indicated the probability that the brains were functioning independently. Electroencephalography disclosed similar but independent patterns of electrical activity normal for their age (2 months). Adequate placement of electrodes over the entire cerebrum was impossible because of the juxtaposition of the heads. Pneumoencephalography (fig. 2) by the lumbar route disclosed separate subarachnoid spaces and indicated a dural septum between the two brains.

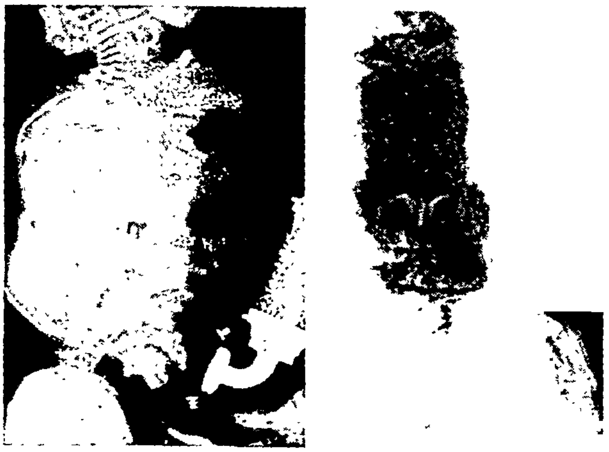

Fig. 2.—Pneumoencephalograms made at the age of 6 weeks. Air was injected into lumbar subarachnoid space of R.D.B. The subarachnoid air is confined to one brain. Note the height of the third ventricle between lateral ventricles. (There was questionable agenesis of the corpus callosum.)

Carotid angiography was carried out after operative exposure of the common carotid artery (the right carotid artery of R. D. B. and the left carotid artery of R. L. B.). Direct intra-arterial injection of iodopyracet (Diodrast) permitted visualization of the intracranial circulation of R. D. B.; owing to technical difficulties, adequate films were not obtained for R. L. B. The films show (fig. 3) independent arterial circulation: the delayed films showed dye in the venous return of only the baby in whom injection had been made. There was no way of accurately predicting from these films what the venous drainage might be. In one attempt at dural sinography through the anterior fontanelle at age 6 weeks, the sinus could not be found. Even through a midline anterior burr hole, the sinus could not be located (age 9 months). At 11 months of age, the junction of the two occiputs was explored, and one parasagittal venous lake was found. Attempts to obtain contrast visualization of this sinus failed.

Fig. 3.—Angiogram in R.D.B. at age 5 months. Iodopyracet (Diodrast) in the middle cerebral artery distribution appears to cross over to the opposite hemisphere, but the midline dye is actually from the anterior cerebral arteries. No dye appears in the cerebrum of R.L.B.

PREPARATION OF SKIN FLAPS

If separation were accomplished, adequate covering for the exposed intracranial structures would have to be provided. It is well known that any free skin graft will grow on exposed brain or dura. It will adhere tightly, however, and such a covering would not be satisfactory, for it would later become necessary to insert some structural support between the skin covering and dura in order to protect the brain. Transplanted skin and subcutaneous fat, but not a free graft, could be reelevated in the future (much as one might do with a normal covering), the mechanical support inserted, and the soft tissue covering then replaced. Since skin with its underlying fat will not grow as free graft, some type of pedicle flap arrangement had to be planned in order to maintain its own viability.

Although specific information concerning the venous drainage systems was inadequate, it was agreed that separation should be attempted. The skin flaps were prepared first. Many different places were considered as the source of the flaps. The most logical solution seemed to be to use direct circumferential flaps taken from around the head. They could be transferred very simply, without discomfort and without the necessity of immobilization in awkward positions. The base of the flaps, in the occipital area, could be brought to the forward part of the skull opening and thus provide some hair where it was most needed. The donor areas from which the flaps were taken could be covered readily with free skin grafts, with which an acceptable cosmetic result might be anticipated.

When the use of scalp flaps had been decided on, it was found by actual measurement that each flap would be approximately 14 in. (35 cm.) long by 3 in. (7.5 cm.) in width. This is very long as compared with the width, especially when the normal blood supply coming in from the vertical axis would be cut off and thus make maintenance of nutrition of these narrow flaps still more hazardous. All of this could be done successfully, however, if sufficient patience and time were used. Repeated "delaying" operations would give adequate circulation if enough time elapsed between the various stages. Each stage would cut off more and more blood supply coming in through the main arteries, namely the frontalis, supraorbital, and superficial temporal arteries of the two sides. As this source of nourishment was gradually diminished, it would simultaneously stimulated increased vascularity rising from the base of each flap in the occipital area and also produce a new additional blood supply in the transverse axis, i. e., parallel to the linear direction of the flap.

The foregoing plan was started on May 14, 1952 (fig. 6, part 1). After three stages, the scalp flaps were completely divided around their peripheries. During the next five months (occupied by several neurosurgical diagnostic procedures) large transverse veins appeared in each flap. These proved to be of inestimable value in preventing venous congestion at the time of transfer. During the first attempt at separation on Nov. 26, 1952, the scalp flaps were elevated completely from their beds. Their blood supply was excellent even though both were 14 in. (35 cm.) long by barely 3 in. (7.5 cm.) wide.

Very early in the course of our observations of the babies, it was evident that there would be numerous diagnostic and surgical procedures, some of which would require an anesthetic agent. During all procedures there was an anesthesiologist with a separate set of instruments (anesthesia machines, laryngoscopes, endotracheal tubes, etc.) with each infant. In each anesthetic procedure, the infants were given only enough of some basal anesthetic agent to produce a state of sleep. This was supplemented by inhalation anesthesia when indicated. Local anesthesia was used as the primary technique where applicable utilizing basal anesthesia by the rectal route with tribromoethanol (Avertin), thiopental (Pentothal), or paraldehyde, and the inhalation of a mixture of nitrous oxide, oxygen, and trichloroethylene as a supplement where necessary. In this way psychic trauma was avoided as the children fell asleep and knew nothing about the procedure. Intubation with soft rubber endotracheal tubes was used in all procedures in which manipulation would endanger the airway.

The respiration of each infant was supplemented or controlled as individually required. At all times, the aim was to have the minimal toxicity at the time of operation and minimal residual toxicity, in order to diminish the possibility of damage from repeated anesthesia. During the operations, continuous consultation between the anesthesiologists and the pediatricians permitted proper fluid replacement. Even in operations done with a small amount of local anesthesia, there was integration of management by all concerned.

In the major procedures that required long periods of time, the problem was magnified by the blood loss and the danger of trauma to the airway from having the tube in place for as long as 12½ hours. The danger of trauma was accentuated by the manipulations necessary during surgery. The problem was one of maintaining the vital functions throughout. The anesthesia was maintained at a light plane to avoid cumulative damage, but yet had to be deep enough to prevent interference from movement of the patients. The chief agent used was nitrous oxide with as high an oxygen concentration possible. Trichloroethylene was added only for a few minutes at a time to reestablish adequate depth of anesthesia.

FIRST ATTEMPT AT SEPARATION

For the first attempt at separation, an incision was made at the junction of the frontal and parietal bones (right side of R. D. B., left side of R. L. B.), and a channel 1.5 cm. wide from the vertex to the occiput was made. An attempt was then made to split the dura mater into its two fused portions. This proved to be impossible beyond a depth of about 1 cm., because the two leaves of dura mater were fused into one sheet; furthermore, as dissection continued in this plane, there was considerable venous bleeding, the source of which could not be determined. Accordingly, incisions were made on either side of the midline septum, exposing the subarachnoid space on either side of the septum. It could be seen that the dural septum did, in fact, separate two brains; however, because of the peculiar position of the two heads and their immobility with respect to each other, it was impossible to look into the depths on either side of the septum. The dural septum was then incised toward the midline between the two brains. This allowed visualization, at a distance of some 6 cm., of two longitudinal sagittal sinuses that did not appear to communicate with one another in the frontoparietal region, which was the limit of the exposure at this time. This exploration and the antecedent elevation of the scalp flaps had taken six and a quarter hours, and it was felt that complete separation could not be accomplished then and that the procedure should be terminated. The incised dura mater was sutured at its periphery, and the wounds closed. The scalp flaps were resutured into their original beds. The postoperative convalescence was uneventful, except for a short left focal seizure in R. D. B., involving the arm, and lasting less than a minute, that was followed by a mild transient hemiparesis for about 18 hours.

FINAL SEPARATION

The final separation was made on Dec. 17, 1952. This was started at the frontal junction with an incision made parallel to the dural septum and a few millimeters from it, to avoid the bleeding encountered when separation of the dura mater had been attempted in the earlier operation. It was believed that the dural defect created by going on R. L. B.'s side of the septum might be covered with polyethylene film. The falx of R. L. B. was found and cut while the numerous vessels were clipped as necessary. After a few centimeters of exposure, it became evident that, in order to permit visualization into the depths, it would be necessary to clip the veins running from the surface of the brain to the dural septum. This would inevitably interfere with the venous return from one of the twins. By the time this information was obtained, there was enough interference with the brain of R. L. B. that it was clear that complete separation would not markedly increase the impairment of cerebral function already anticipated (fig. 4). Accordingly, the falx was cut completely, and the veins that drained the surface of R. L. B.'s cerebrum were also clipped and cut as they entered the dural sinuses. These were found to be three in number (fig. 5); they lay within the dural septum. One was far out in the periphery, forming a semicircle on the left side of R. D. B.'s brain, and there was one on either side of the cut falx, which had extended from R. L. B.'s brain to the dural septum. It was possible to reach the posterior part of the falx where there were huge venous lakes connecting all of the lateral sinuses and all of the sagittal sinuses, as well as the circumferential sinus posteriorly in what amounted to a conjoined torcular Herophili. With the incision being made on R. D. B.'s side, these enormous conjoined sinuses were cut through. Hemostasis was obtained with difficulty, and the babies went into shock, which was counteracted by liberal administration of blood.

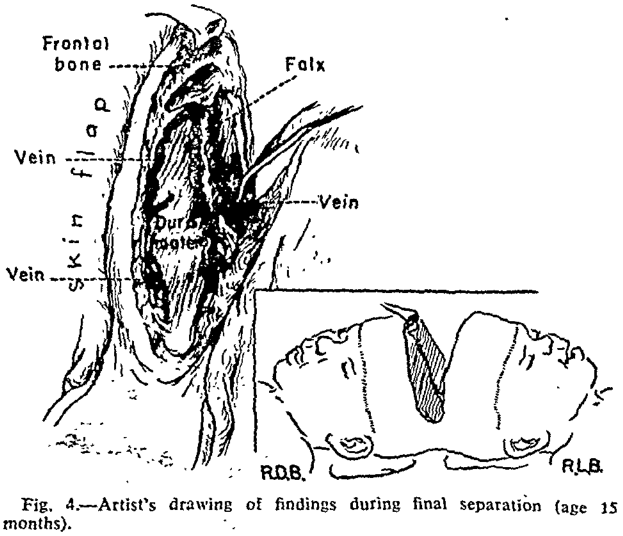

Fig. 4.—Artist's drawing of findings during final separation (age 15 months).

Thus was accomplished the complete separation of the two infants, 10½ hours after the operation was begun. R. L. B.'s brain had the typical appearance of congestion with petechial hemorrhage that would be expected from a brain with an intact arterial supply but virtually no venous outflow. R. D. B.'s brain appeared to be normal except for some congestion and edema in the right parietal region where the dural septum was defective, presumably as a result of failure of healing of the incision made in the dural septum on that side in the first separation attempt.

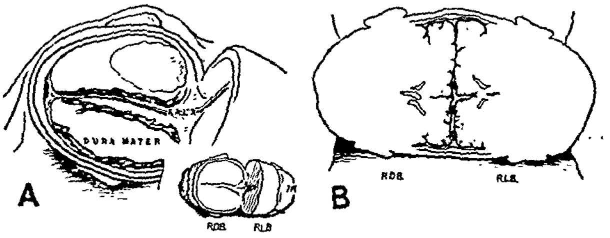

Fig. 5.—*A*, diagram of arrangement of abnormal dural venous sinuses as disclosed by operation. Note the dural defect over the right hemisphere of R.D.B. *B*, reconstruction of arrangement of dural venous sinuses, seen in coronal section. Note the apparent absence of the falx in R.D.B.

The problem now arose as to how to cover the denuded brains, which had no dura mater. Polyethylene film was used for this purpose; it was sutured to the dural edge of R. L. B.'s brain and to the dural and/or subcutaneous tissues over R. D. B.'s brain. The blood loss had been so great and the operation had taken such a long time that it was felt unwise to consider reflecting the scalp flaps and placing them in position on top of the polyethylene film, for this would have meant more hours of operating time and more loss of blood that might not have been withstood. It had originally been planned to put polyethylene plates in place at this time, but the molding of these plates and their anchoring into the wound would again have been too onerous a burden, so this, too, was omitted and we were content to use sterile aluminum foil to cover the top of each head before putting on dry dressings and sterile bandages. The aluminum foil was easily molded, could be sewed, and was believed to be mildly bacteriostatic. The entire procedure required 12½ hours. R. D. B. received 2,500 cc. of blood and R. L. B. 3,500 cc. during procedure.

After separation, R. D. B. cried spontaneously; R. L. B. showed attempts at crying while the endotracheal tube was still in place. A small catheter placed in the tube revealed an obstruction. The quick removal of the tube and tracheobronchial aspiration showed that the accumulation secretions had become rubber-like, blocking the airway. After this resuscitative procedure, the baby cried weakly.

Course of R. D. B.—At the time of separation when it was necessary to separate the venous plexus, there was a sudden loss of blood that resulted in a severe cardiovascular collapse in R. L. B., so that no pulse, blood pressure, or heart sounds were detectable. The very rapid administration of oxygen by pressure on the breathing bag, positive pressure on the thorax, and rapid intravenous infusion of blood restored essentially normal cardiovascular function. He did not respond to painful stimuli. About eight hours after operation, there was marked irregularity of rate and depth of respiration, with retraction of the suprasternal and infrasternal regions. Secretions from the hypopharynx were aspirated easily, with the patient in an atmosphere rich in oxygen and moisture, but signs of right upper pulmonary atelectasis appeared. Although it was considered probable that much of the respiratory difficulty might be due to central nervous system derangement, tracheotomy was done by Dr. Cecil Riggs of the department of otolaryngology, to provide as open an airway as possible. Periodic breathing of the Biot type appeared, however, indicating a central nervous system cause for the respiratory difficulty. Accordingly, the head dressings were removed, when it was seen that the swelling and engorgement of the cerebrum seen during the operation had progressed. Relief of pressure by removing the artificial coverings of the brain brought immediate improvement in breathing. The tachycardia observed during the Biot breathing became slower.

With the long exposure of the brain, contamination and possible infection were anticipated, so penicillin and streptomycin were given intramuscularly. Organisms sensitive to these antibiotic agents were suppressed, but an infection with Pseudomonas aeruginosa was detected on the fourth postoperative day. This was controlled by daily local applications of 2½% polymyxin B to the surface of the brain and by intramuscular injections of 2 mg. per kilogram of body weight per day. No evidence of systemic toxicity was discovered, although the antibiotic was given until his death 34 days after separation. By this time, the surface infection of the brain was completely controlled. Staphylococcic organisms were controlled by intermittent administration of aureomycin, oxytetracycline (Terramycin), and erythromycin. Eleven days after operation, signs of diffuse bronchopneumonia appeared, with marked expiratory difficulty and very tenacious secretions. In order to liquefy these, water was nebulized over the tracheotomy tube. Since high humidity alone proved insufficient, a solution of trypsin (Tryptar) was given as an aerosol through the nebulizer (20,000 to 50,000 units of trypsin in 2 to 3 cc. of diluent at ph 7.4 every six to eight hours. On several occasions, Alevaire (a solution of glycerine, sodium bicarbonate, and a detergent, Triton WR-1339, in distilled water) was used in a similar manner. Marked liquefaction of the secretions resulted, permitting their aspiration and resulting in marked improvement in respiration. No evident signs of toxicity to the drug were noted. The signs of bronchopneumonia subsided. During the survival period, the infant remained comatose and exhibited signs of decorticate rigidity. Parenteral fluid therapy was given for the first few postoperative days, and thereafter nutrition was maintained by feedings through a no. 19 polyethylene nasogastric tube. Up to 4,500 calories daily were necessary. During the last week of life, there were marked variations in rectal temperature (108 F to 94 F), the peaks not responding to antipyretic measures. Respiratory irregularities of central nervous system origin appeared again on Jan. 19, 1953, and he died on Jan. 20, 1953.

Course of R. D. B.—Immediately after the separation, R. D. B. cried and moved all extremities. He took fluids by mouth the following day and responded to familiar persons. He was kept in oxygen with supersaturated humidity to minimize the effects of the prolonged period of intubation. Supplementary parenteral fluids and antibiotics were given as with R. L. B. On the fourth postoperative day, he was irritable and refused oral feedings. There was an odor from the head dressing characteristic of a Ps. aeruginosa infection, so the dressings were removed, and the surface infection which was found was treated with polymixin B in the same manner and dose as in R. L. B. The thick tenacious exudate typical of infection with this organism gradually subsided. It had not completely disappeared by Dec. 30, when the clinical status of the patients was improved sufficiently to permit proceeding with the plastic surgery (fig. 6). On this day, the scalp flap (fig. 6, part 1) was reelevated and transferred to cover the posterior half of the exposed intracranial structures (fig. 6, parts 2 through 5). The terminal end of the flap was turned to cover part of the anterior defect. All of this flap grew well except for a short segment along the distal edge. This ultimately was trimmed off. After the flap was transferred, the donor site from which it was taken was covered with a large autogenous split-skin graft taken from his back (fig. 6, parts 6 through 8).

On Jan. 17, 1953, the base of the pedicle in the occipital area was divided so as to stimulate additional return circulation from the opposite end of the transplanted flap (fig. 6, part 9). On Feb. 10, the proximal end of the flap was completely detached from the occipital area and transferred forward to cover nearly all of the remaining open defect (fig. 6, parts 10 through 12). Donor sites were covered in each case by split-thickness grafts, some of which had to be revised later.

On March 11, the "dog ear" in the flap was divided in its central portion. The anterior part of the flap was reelevated until it could be shifted anteriorly without tension to cover the balance of the open cranium. The excess "dog ear" was trimmed off and its edges sutured. By this time, the infection was not apparent. This twin, too, showed no signs of toxicity from the antibiotics.

Several days after the separation, when there was more spontaneous activity, it became apparent that there was a left hemiparesis and left astereognosis. Although he was able to hold objects when he looked at them, he did not know what to do with them if his eyes were turned away, nor did he place his extremities properly if he did not see them. The hemiparesis disappeared within the first month, but the astereognosis still continues, although less marked than before. There are no hyperactive stretch reflexes on the left, nor is there any loss of common sensibility. There are intermittent Babinski signs on both sides, which are considered to be normal for his age.

Before the separation, the neuromuscular development of the twins was considered normal. This was assessed with difficulty because of the peculiar nature of the junction of the heads, which undoubtedly interfered with the development of head control, tonic neck reflexes, and the ability to sit and stand. Both had normal infant jargon. During the three months that followed separation, R. D. B. showed only a slow progression of

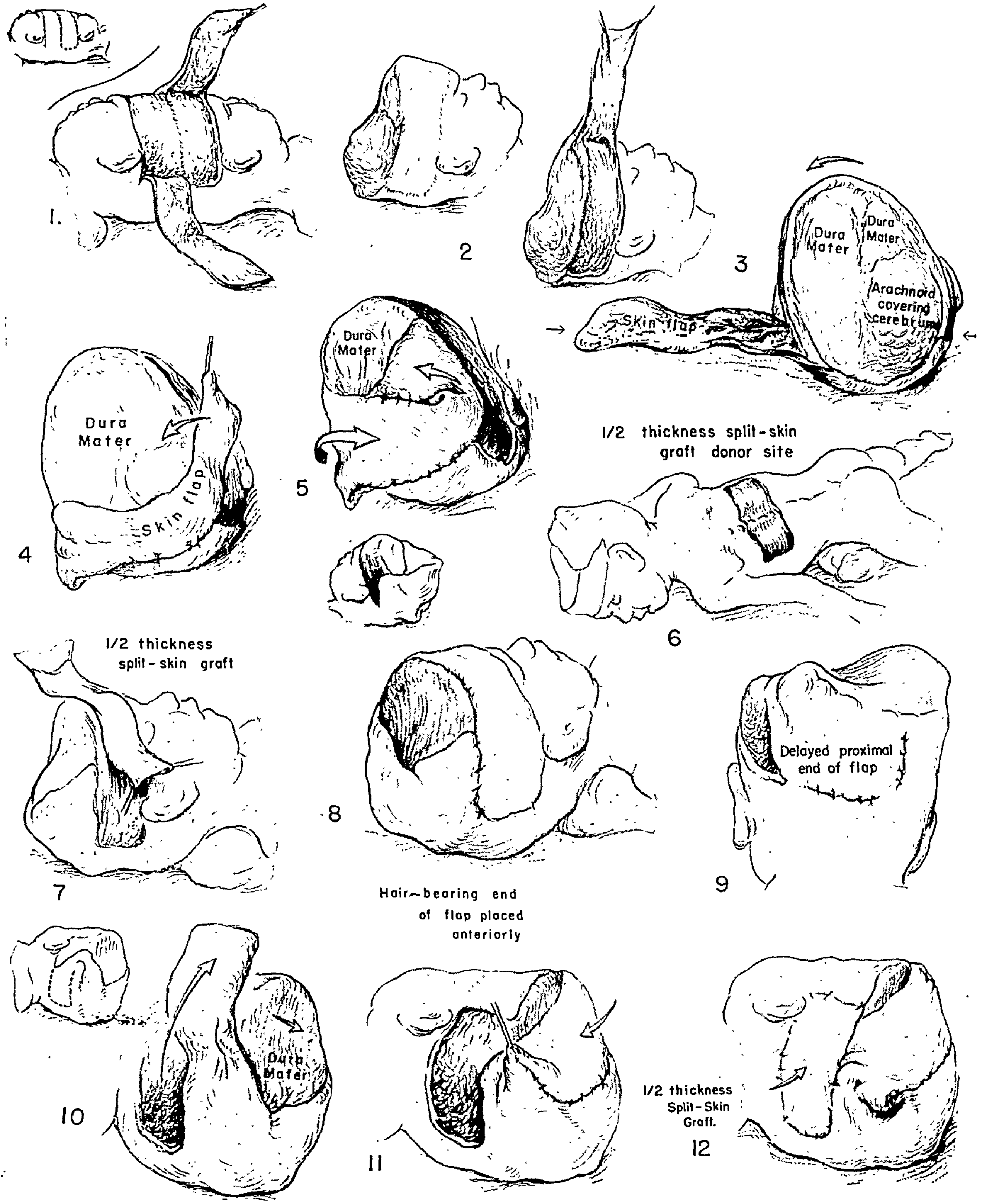
1.
2
Dura Mater
Dura Mater
3
Arachnoid covering cerebrum
Skin flap
Dura Mater
Skin flap
4
Dura Mater
5
1/2 thickness split-skin graft donor site
6
1/2 thickness split-skin graft
7
8
Delayed proximal end of flap
9
Hair-bearing end of flap placed anteriorly
Dura Mater
10
11
1/2 thickness Split-Skin Graft.
12

Fig. 6.—Origin of circumferential pedicle flaps of both infants and stages in covering exposed intracranial contents by skin flaps in R.D.B. *Part 1,* pedicle flaps, which were replaced after the first attempt at separation on Nov. 26, 1952. *Parts 2 through 5,* reelevation of skin flaps and transfer to cover the posterior half of the exposed intracranial structures of R.D.B. (Dec. 30, 1952). The arrows in *part 3* indicate the severance site of the terminal end of the flap. *Parts 6 through 8,* covering of exposed donor site of pedicle flap with split-thickness graft from the back of the pedicle flap (Jan. 6, 1953). *Part 9,* extension of the proximal end of the full-thickness flap by delay of circulation to the base (Jan. 17, 1953). *Parts 10 through 12,* completion of the rotation of the full-thickness graft to cover the remaining exposed intracranial structures (Feb. 10, 1953). The donor site is covered by a split-thickness graft (March 1, 1953).

development. This is attributed to the trauma of separation, debility, infection, and repeated operations that took place during this period. Since the head covering has been completed, he has shown a considerable advance in development and improvement in his general physical state. He has had a considerable amount of occupational and physical therapy, which has contributed to this improvement. He can now sit alone, but cannot pull himself into the sitting position. He has good control of his head and good coordination of all extremities, and his jargon has increased in amount and in intelligibility. He is alert, responds to favored personnel, and makes attempts to feed himself. The hip flexors (which were tight, presumably owing to lack of standing) have become normal with physical therapy. It is difficult to assess the degree of development in all spheres because of the many factors, biological, traumatic, and psychological, that have affected his present state.

There is still no solid protection for the brain, and the solution of this problem is now under active consideration. We are reluctant to use any foreign material over such a large surface of dura mater and under skin flaps, because of the hazards accompanying buried foreign bodies. Autogenous bone grafts appear to offer the best replacement for the calvarium that never developed, but the extensiveness of the defect make accomplishment of closure by this means difficult.

All the professional and technical skills have basically one objective—to permit this baby to grow and develop as a happy, effective human being. His handicap—like other handicaps—need not prevent him from fulfilling this goal. It has been necessary throughout, therefore, to provide for him as well as his family an understanding and comfortable environment. Without such an environment—and without the help of his parents and our help to them in understanding his problems—the boy's development might not have proceeded so well. The future planning must involve most careful attention to his emotional and social development. This will consist of his parents' greater and greater participation in his care as his physical problems permit, continued medical and surgical efforts to correct his physical difficulties with as little pain and discomfort as possible, and long-term planning to assure stimulating educational opportunities that are compatible with his capacities. These provisions, associated with increasing understanding of all handicapped children by the public, will provide the best assurance that this boy will have the opportunities that should come to all children—that of the fulfillment of his greatest potentialities as a human being.

CHOICE OF A CORONARY VASODILATOR DRUG IN CLINICAL PRACTICE

EVALUATION OF EFFECTS BY ELECTROCARDIOGRAPHIC TESTS

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Each year new drugs are introduced that are alleged to have coronary vasodilator action. After an initial enthusiastic endorsement, most of these agents fall into disrepute or lose popularity because of the uncertainty arising from conflicting claims. Frequently, the clinical value of a coronary vasodilator drug has been estimated from its pharmacological action in animals or from its performance in uncontrolled studies in human disease; less often it has been appraised from carefully controlled analyses of the subjective sensation of pain in patients with angina pectoris. Some attempts to determine the effect of drugs on the severity and frequency of anginal attacks occurring spontaneously or induced by exercise have successfully removed or minimized the element of bias; but even the best of these methods employing the double blind technique with placebo and test materials have left much to be desired. Such procedures would be acceptable for assaying the vasodilator potency of drugs, if pain represented a definite entity and reflected a fairly constant degree of coronary insufficiency in each patient. Obviously, this is not the case. Pain is of infinite variability and to date has not been accurately quantitated in man either subjectively or objectively. Furthermore, even if such precise measurement were possible, pain could not reliably reflect the status of the coronary circulation or the degree of myocardial ischemia. In our laboratory, for example, patients who show constant electrocardiographic alterations with each performance of a standard exercise test under carefully controlled conditions have experienced no distress on some occasions and appreciable pain on others. Conversely, as Dock[1] has pointed out "a minute ischemic area in the myocardium may cause as severe discomfort as ischemia of a whole ventricle." By such methods of evaluation, drugs that only elevate the threshold for pain might be erroneously labelled as coronary vasodilator agents. A more accurate index of coronary insufficiency than that afforded by the subjective sensation of pain alone is, therefore, needed if rational therapy by means of drugs is to be established in angina pectoris.

With this need in mind, we attempted to record and compare the ability of specific agents to modify the electrocardiographic response to standard exercise (Master

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Walter A. Brecher gave technical assistance.

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From the Cardiovascular Research Unit, Department of Medicine, United States Public Health Service Hospital, Staten Island, N. Y. A joint project with the National Heart Institute.

[1] Dock, W.: Angina Pectoris: The Neuralgic Features of the Classic Form of Heberden's Disease, M. Clin. North America 33:625 (May) 1949.

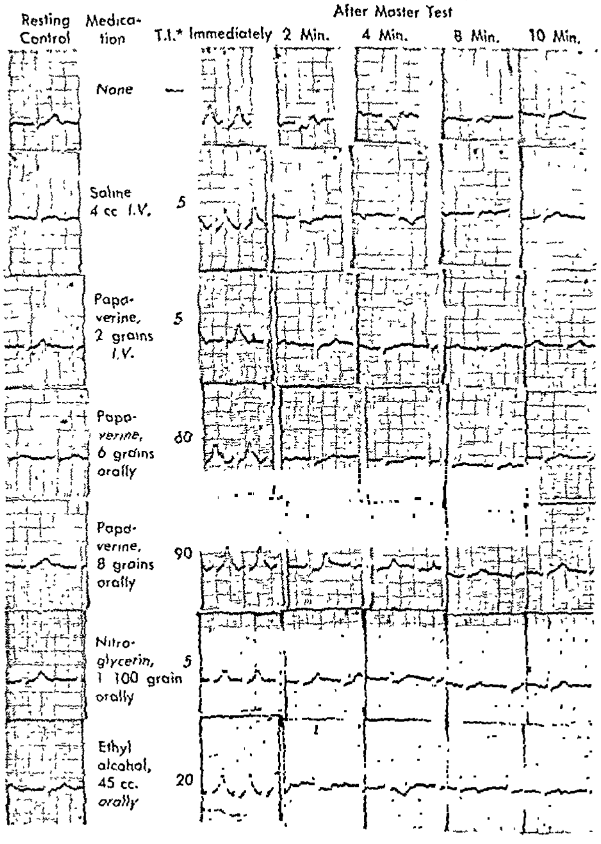
two-step test) in carefully selected persons.[2] To have validity such investigation must include only those patients with coronary disease who exhibit, on repeated testing under identical conditions, a relatively constant positive response to a given amount of exercise. The difficulty in obtaining patients suitable for such study can be estimated from a four year experience in screening over 3,000 patients with coronary artery disease by means of a two-step exercise electrocardiographic test. Of this number, only 52 patients qualified as fulfilling the criteria. In these patients, it was found that appreciable periods exist during which the electrocardiographic alterations evoked by standard exercise recur in almost identical fashion with each performance of the test. Even after weeks or months of observation, it was often necessary only to add or subtract several ascents and descents of the two-step staircase to obtain new controls for further test comparisons. By such adjustments, the inevitable changes attending the natural course of the disease did not hinder continued use of most of these test subjects for bioassay of vasodilator drugs. In this manner, as many as 200 exercise tests were carried out in one patient over a four year period.

MATERIAL AND METHOD

Fifty of the patients in this series were men between the ages of 32 to 77 years. Two were women, 49 and 52 years of age, respectively. Seven of the 52 patients had sustained previous myocardial infarction; and 30 presented classic symptoms of angina pectoris. Arterial hypertension was present in 20 of the 52 subjects. In all patients included in this series, the control response to exercise remained constant when recorded from day to day and, in addition, could be favorably modified by the sublingual administration of therapeutic doses of glyceryl trinitrate (nitroglycerin) just before the test. By establishing this prerequisite, it was felt that a basis for comparison could be obtained between the effect of the potent coronary vasodilator glyceryl trinitrate and that of other agents with unknown or undefined action. Under informal conditions with reassurance, demonstration, and explanation designed to allay the patient's anxiety, these tests were carried out under identical environmental conditions at the same time each day and by the same observers. In most instances, only one test was performed in any 24 hour interval. Each drug was tested three to six times in every patient. The following drugs (see table) were studied: glyceryl trinitrate, papaverine hydrochloride, ethyl alcohol (in the form of scotch or rye whiskey), aminophylline, Roniacol (beta-pyridyl-carbinol tartrate), tolazoline (Priscoline) hydrochloride, tetraethylammonium chloride, octyl nitrite, dioxyline (Paveril) phosphate, visammin (khellin), heparin, bishydroxycoumarin (Dicumarol), pentaerythritol (Peritrate) tetranitrate, and morphine.

Analysis of Results of Various Drugs in Fifty-Two Patients

Drug	Dosage	No. of Tests	No. of Patients	Good Response (Patients)
Glyceryl trinitrate	1/100-1/150 grain	268	52	52
Papaverine	1-2 grains I.V.	38	10	7
	3-8 grains orally	71	14	7
	1.5 grains orally	36	12	0
Ethyl alcohol	1-2 oz.	62	12	0
Pentaerythritol (Peritrate) tetranitrate	10-20 mg.	64	12	8
Aminophylline	7.5 grains I.V.	28	8	1
	6 grains orally	18	6	0
Roniacol (beta-pyridyl-carbinol tartrate)	100 mg. orally	33	8	0
Visammin (khellin)	200 mg. I.M. or orally	41	7	0
Octyl nitrite	1-4 inhalations	92	15	3
Tolazoline (Priscoline) hydrochloride	25-50 mg. I.M. or orally	30	6	0
Tetraethylammonium chloride	300-500 mg. I.M.	24	8	0
Dioxyline (Paveril)	200-500 mg. orally	52	10	2
Heparin	50-100 mg. I.V.	110	18	0
Bishydroxycoumarin (Dicumarol)	200 mg.	21	6	0
Morphine	¼ grain subcutaneously	9	6	0


Resting Control
Medication
T.I.*
After Master Test
Immediately
2 Min.
4 Min.
8 Min.
10 Min.
None
—
Saline 4 cc I.V.
5
Papaverine, 2 grains I.V.
5
Papaverine, 6 grains orally
60
Papaverine, 8 grains orally
90
Nitroglycerin, 1 100 grain orally
5
Ethyl alcohol, 45 cc. orally
20

*Minutes between medication and test

Fig. 1.—Master test responses (lead CF_4) obtained in a patient with angina pectoris with and without the administration of drugs.

RESULTS

Glyceryl Trinitrate.—The 52 patients in this series were tested repeatedly with glyceryl trinitrate, and, on every occasion, a strikingly favorable effect on the response to exercise as recorded electrocardiographically was observed (fig. 1 to 3). A normal exercise response was obtained in 39 of the 52 patients when 1/150 to 1/100 grain (0.4 to 0.6 mg.) of glyceryl trinitrate was administered sublingually five minutes prior to commencement of the test. In the remaining 13, although a completely negative record was not obtained after administration of glyceryl trinitrate, significant improvement in the postexercise electrocardiographic patterns was observed in each instance.

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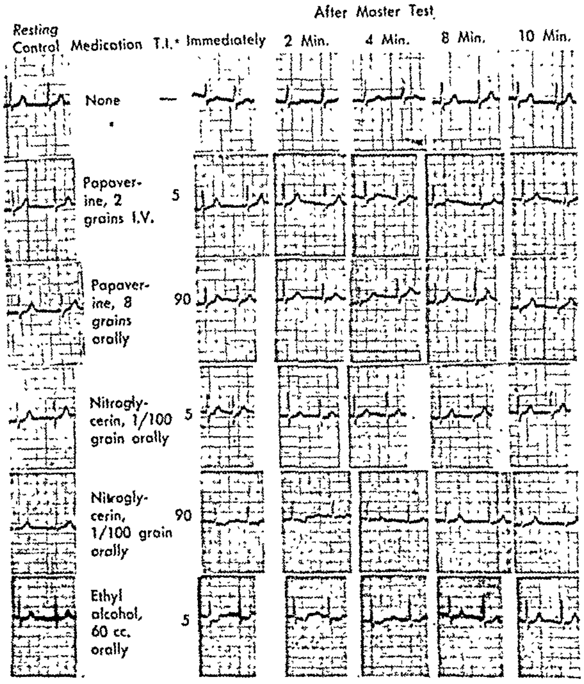
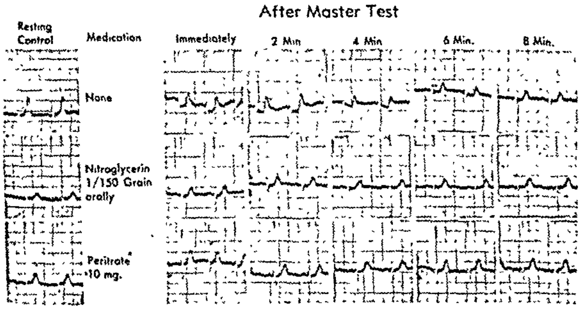
[2] (a) Russek, H. I., and others: Influence of Saline, Papaverine, Nitroglycerine and Ethyl Alcohol on the Electrocardiographic Response to Standard Exercise in Coronary Disease, *Circulation* **1**: 700 (April) 1950. Russek, H. I.; Naegele, C. F., and Regan, F. D.: Alcohol in the Treatment of Angina Pectoris, *J. A. M. A.* **143**: 355 (May 27) 1950. Russek, H. I.; Regan, F. D., and Naegele, C. F.: 100% Oxygen in the Treatment of Acute Myocardial Infarction and Severe Angina Pectoris, ibid. **144**: 373 (Sept. 30) 1950. Russek, H. I., and others: Effect of Khellin in Coronary Artery Insufficiency as Evaluated by Electrocardiographic Tests, *New York J. Med.* **52**: 437 (Feb. 15) 1952. (b) Russek, H. I.; Urbach, K. F., and Doerner, A. A.: Effect of Heparin in Cases of Coronary Insufficiency: Evaluation by Electrocardiographic Tests, *J. A. M. A.* **149**: 1008 (July 12) 1952.


After Master Test
Resting Control
Medication
T.I.*
Immediately
2 Min.
4 Min.
8 Min.
10 Min.
None
—
Papaverine, 2 grains I.V.
5
Papaverine, 8 grains orally
90
Nitroglycerin, 1/100 grain orally
5
Nitroglycerin, 1/100 grain orally
90
Ethyl alcohol, 60 cc. orally
5

*Minutes between medication and test

Fig. 2.—Master test responses (lead V_4) in a patient with coronary insufficiency with and without the administration of drugs.

Papaverine Hydrochloride.—Papaverine was administered in doses of 1 to 2 grains (0.06 to 0.12 gm.) intravenously or 1.5 to 8 grains (0.10 to 0.518 gm.) orally to 14 patients in this series. Intravenous administration five minutes before exercise was found effective in 7 out of 10 patients as shown by completely normal responses or improved electrocardiographic patterns as compared to controls (fig. 1 and 2). Large oral doses of papaverine, 3 to 8 grains (0.194 to 0.518 gm.), gave similarly favorable results in 7 of 14 patients who were tested from 60 to 90 minutes after its administration. In contrast, usual therapeutic doses of papaverine showed negligible effect on the electrocardiographic response to standard exercise.

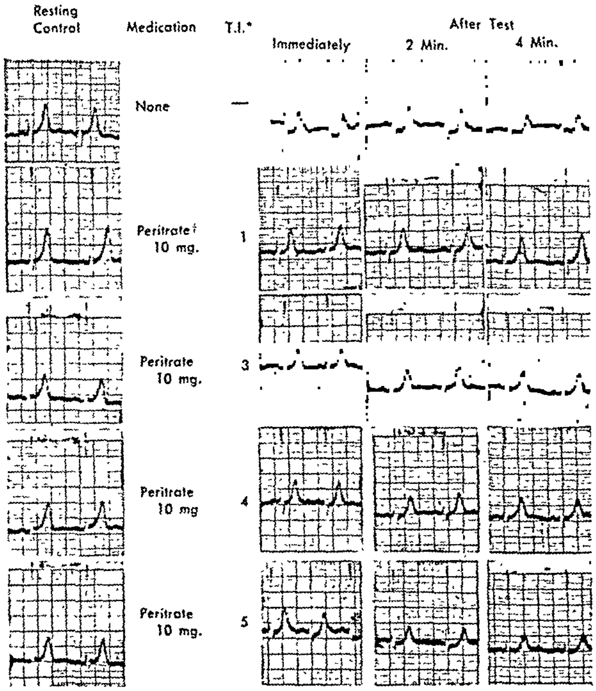


*Pentaerythritol tetranitrate

Fig. 3.—Effect of glyceryl trinitrate and pentaerythritol tetranitrate respectively on the response to the Master test (lead V_4) in a patient with coronary insufficiency. Glyceryl trinitrate was given five minutes before the test, pentaerythritol tetranitrate one hour before.

Ethyl Alcohol.—Twelve patients were given ethyl alcohol in the form of scotch or rye whiskey (1 to 2 ounces) 5 to 20 minutes before exercise. Although 62 tests were performed with this drug, not a single instance was noted in which the electrocardiographic response was favorably influenced by its administration (fig. 1 and 2). In striking contrast, it was also found that ethyl alcohol prevented or reduced anginal pain in all seven patients in this group in whom this symptom was evoked during control tests.

Pentaerythritol Tetranitrate.—In a dose of 10 to 20 mg., pentaerythritol tetranitrate was found to exert a marked modifying influence on the electrocardiographic response to standard exercise in 8 of 12 patients tested. In all of the patients showing favorable response, the results were comparable to those obtained with glyceryl trinitrate, but the duration of action was considerably more prolonged. Thus, with pentaerythritol tetranitrate, an improved response could be elicited as long as four to five hours after administration of the drug (fig. 3 and 4).



* Hours between medication and test.
† Pentaerythritol tetranitrate.

Fig. 4.—Master test responses in a patient with coronary insufficiency after a single dose of 10 mg. of pentaerythritol tetranitrate; normal response obtained as long as four hours after administration of the drug.

Other Drugs.—Aminophylline in the dose of 7½ grains (0.5 gm.) intravenously or 6 grains (0.4 gm.) orally and Roniacol in a dosage of 100 mg. orally were both found to have slight or insignificant effect. Even in massive doses, visammin, 200 mg. administered intramuscularly or orally, failed to alter favorably the electrocardiographic response in all patients tested. Octyl nitrite by inhalation was at best as effective as 1/300 grain

(0.2 mg.) of glyceryl trinitrate. Tolazoline hydrochloride in 25 to 50 mg. doses intramuscularly or orally and tetraethylammonium chloride in 300 to 500 mg. doses intramuscularly showed either no modifying effect or an adverse influence on the response to exercise. Dioxyline phosphate in amounts similar to those employed with papaverine did not give comparable results. Dioxyline phosphate appeared to be a much less potent drug than papaverine according to this method of testing. Heparin in recommended doses (50 to 100 mg. administered intravenously once or twice a week) did not exert a significant effect on the electrocardiographic response to standard exercise in any of the patients tested. Bishydroxycoumarin in therapeutic dosage was also without demonstrable value. Morphine, like ethyl alcohol, prevented the onset of pain but failed to exert a modifying influence on the electrocardiographic response to standard exercise.

COMMENT

The findings of this investigation suggest that only 3 of the 14 drugs studied are worthy of continued clinical use as vasodilators in the management of angina pectoris or other states of coronary insufficiency. These drugs are glyceryl trinitrate, papaverine, and pentaerythritol tetranitrate. Glyceryl trinitrate remains the drug of choice for treatment of the acute attack and for prophylaxis just prior to contemplated exertion. For prolonged protection, pentaerythritol tetranitrate (10 to 20 mg., three times a day) appears to excel all other drugs tested. It is superior to papaverine because of the higher proportion of persons influenced favorably, the greater duration of action, and the expense of the latter in effective dosage. When papaverine is prescribed in cases of coronary disease, it would seem that a minimum oral dosage of 3 grains (0.2 gm.) three or four times a day is indicated. Considerably smaller doses, however, are effective parenterally.

The failure of ethyl alcohol to influence the electrocardiographic response to exercise in all patients studied appears to indicate that this agent is without coronary vasodilator action. Alcohol has long been known to be a depressant of the central nervous system capable of decreasing anxiety and promoting a sense of well-being. Since the administration of ethyl alcohol prophylactically may not only create a false sense of physical fitness but remove the protection afforded by angina, the danger of its employment prior to contemplated exertion should be recognized. Consequently, although it effectively relieves anginal pain through a sedative action, the fact that underlying myocardial anoxia remains unaltered by its use must not be overlooked. In these respects, morphine was found to act similarly. Ethyl alcohol appears to have value as a sedative for some patients with coronary disease and seems best taken during the leisurely hours at the end of the day. For the anginal attack, however, it must be considered a poor substitute for glyceryl trinitrate since like morphine it is completely ineffective in preventing or correcting coronary insufficiency.

As Starr [3] has pointed out, generalized vasodilatation cannot be produced without a concomitant increase in blood volume. Since rapid increments of blood volume are not possible, the blood needed to fill vessels the diameter of which has rapidly increased must be withdrawn from other vessels the diameter of which must diminish correspondingly. Vasodilatation in some vascular areas causes reflex vasoconstriction in others so that an exchange of blood flow by a borrowing-lending process would seem operative. With this concept in mind, it is perplexing to find that different authors advocate the same drug for augmenting cerebral, coronary, renal, and peripheral blood flow. The fact that ethyl alcohol causes dilatation of skin vessels and draws blood to the surface of the body would seem to suggest that it may fail to augment coronary blood flow. This was actually substantiated by our studies. Similarly, the recognized value of tolazoline hydrochloride as a dilator of peripheral vessels should raise the question of whether or not this drug might actually decrease coronary blood flow. Several of our observations with this drug have at least pointed in that direction.

Heparin and bishydroxycoumarin have been considered of value by Gilbert and Nalefski [4] in the treatment of coronary disease, because of an alleged action of these drugs in increasing coronary blood flow. Similarly, Graham and associates [5] have reported marked relief of symptoms in patients with angina pectoris who had weekly or biweekly injections of 50 to 100 mg. of heparin. The improvement, however, was attributed by these authors to the profound effect of heparin on lipoprotein metabolism, rather than to a vasodilator or antithrombotic action. Our studies [2b] with these drugs have shown no demonstrable effect on the electrocardiographic response to standard exercise; moreover, we have been unable to confirm the striking subjective improvement in anginal symptoms reported by others from the use of heparin.

SUMMARY AND CONCLUSIONS

Evaluation of vasodilator drugs in the treatment of coronary disease presents a difficult problem because of the lack of objective methods of study, the inapplicability of animal observations to man, the element of subconscious bias, and the inaccuracy of clinical estimates of coronary reserve and myocardial anoxia that are based on the symptom of pain. We attempted to avoid some of these pitfalls by recording and comparing the ability of specific agents to modify the electrocardiographic response to standard exercise (Master two-step test) in carefully selected cases.

The findings seem to justify the following conclusions: 1. Glyceryl trinitrate (nitroglycerin) in therapeutic doses exerts a strikingly favorable effect on the response to exercise as recorded electrocardiographically. 2. Papaverine in the dosage of 1 to 2 grains (0.065 to 0.12 gm.) intravenously or 3 to 8 grains (0.194 to 0.518 gm.) orally is effective in some patients in decreasing or abolishing the abnormal electrocardiographic response to standard exercise. Such benefit was not, however, observed with usual therapeutic doses of the drug. 3. Of all the agents tested, pentaerythritol (Peritrate) tetranitrate appears to be the most effective drug currently available for prolonged prophylactic therapy in angina pectoris. A 10 to 20 mg. dose affords protection for four to five hours, as judged from the two-step test in the majority of patients studied. 4. Aminophylline, Roniacol (beta-pyridyl-carbinol tartrate), tolazoline (Priscoline) hydrochloride, tetraethylammonium chloride, octyl nitrite, dioxyline (Paveril) phosphate, visammin (khellin), heparin, and bishydroxycoumarin (Dicumarol) appeared unimpressive when evaluated according to this method. 5. Ethyl alcohol, in 1 to 2 ounce amounts, consistently fails to influence the electrocardiographic response to exercise, although it does prevent or reduce the severity of anginal pain. Alcohol should, therefore, be recognized as a rapidly acting sedative and should no longer be regarded as a coronary vasodilator drug. Morphine is identical to alcohol in its effect on pain and in its failure to modify the exercise response. 6. Of the drugs tested, only glyceryl trinitrate, papaverine, and pentaerythritol tetranitrate appear worthy of continued clinical use as vasodilators in the management of angina pectoris.

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[3] Starr, I.: George E. Brown Memorial Lecture: Physiologic Considerations Concerned with the Pathogenesis and Treatment of Obstructive Vascular Disease, Circulation 6: 643 (Nov.) 1952.

[4] Gilbert, N. C., and Nalefski, L. A.: The Effect of Heparin and Dicumarol in Increasing the Coronary Flow Volume, J. Lab. & Clin. Med. 34: 797 (June) 1949.

[5] Graham, D. M., and others: Blood Lipids and Human Atherosclerosis: The Influence of Heparin upon Lipoprotein Metabolism, Circulation 4: 666 (Nov.) 1951.

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CLINICAL NOTES

CORONARY EMBOLISM

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and
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Coronary embolism is a very rare occurrence. The first case was reported by Virchow[1] in 1856. Saphir,[2] in 1933, collected 16 cases of coronary embolism from the literature and reported 3 that he had observed himself. In 1941, Hamman[3] was able to refer to 40 cases, 30 from the literature and 10 from records of the Johns Hopkins hospital. In 1950, Moragues, Bawell, and Shrader,[4] after reviewing the literature, were able to refer to 45 cases and reported one of their own. Since then, individual cases have been reported by Mussafia,[5] Rodario,[6] Facquet,[7] Ravera,[8] Aguiar,[9] Glushien,[10] and Walker.[11] A total of 53 cases of coronary embolism have been reported in the literature to date. Among them only three were diagnosed during life. We present a case of coronary embolism in which the diagnosis was made before death and confirmed at autopsy.

REPORT OF A CASE

A 21-year-old white woman, gravida 3 and para 2, first entered the hospital on Dec. 12, 1950. She was admitted to the surgical obstetric service complaining of pain in the right flank when the fetus moved and also of easy fatigability. She stated that at 10 years of age she had "St. Vitus' dance" that compelled her to stay in bed for two years because she was unable to walk. After those two years, she resumed her normal activities without any difficulties. In June, 1948, she spontaneously delivered her first child, at which time her physician told her that she had "heart trouble." Her second spontaneous delivery in August, 1949, of a 6 lb. 10 oz. (3,005 gm.) boy was uneventful. After this delivery, the patient's tolerance to exercise gradually decreased. She stated that she became short of breath when climbing stairs, although she complained of no dyspnea at rest, orthopnea, ankle edema, or any other cardiac symptoms. She became pregnant for the third time and was well until two weeks prior to her admission to the hospital, at which time there developed an increase in exertional dyspnea and pain associated with fetal movement. The patient had been receiving no prenatal care, and she was not taking any cardiac medication. The rest of her history was noncontributory except that her mother died of rheumatic heart disease at the age of 31.

Physical examination on admission revealed a young woman who did not appear acutely ill. Her temperature was 98.2 F; pulse 104 per minute; respirations 20 per minute; and blood pressure 105/75 mm. Hg. There was a slight malar flush. Lungs showed moist basilar rales bilaterally. Sinus rhythm was regular. Apical impulse was in the fifth interspace in anterior axillary line. A systolic, blowing murmur and a mid-diastolic rumble with a palpable thrill were found at the apex. A pulmonic systolic murmur with a reduplicated second tone was also heard. P_2 was louder than A_2. The liver was enlarged and extended 3 cm. below the costal margin. Hepatojugular reflex was negative. The uterus contained a 36 to 38-week-old fetus. The legs were not edematous.

A chest film showed the heart to be increased in transverse diameter, with fulness of the pulmonary artery segment. There was also a suggestive double density overlying the heart that was thought to be due to left auricular enlargement. Definite congestive changes in both lungs were noted, although effusion was not present. Urinalysis showed nothing abnormal, and reaction to a Kahn test was negative. An electrocardiogram revealed a right axis deviation and broad, notched, flat-topped P waves in leads 1 and 2. A diagnosis of rheumatic heart disease, mitral stenosis, and regurgitation with decompensation was made.

While in the hospital, the patient was treated with digitalis, ammonium chloride, and meralluride sodium solution (Mercuhydrin). She was kept at absolute bed rest and maintained on a low salt diet. Under this management, compensation was achieved, and, on Jan. 3, 1951, the patient delivered spontaneously. Tubal ligation was performed two days after the delivery. Compensation was good throughout both procedures, and the patient was discharged on Jan. 15, 1951, in good condition.

The patient entered a women's medical ward of the same hospital on Aug. 28, 1952, at 9:25 a. m. as a case of acute cardiac emergency. During the preceding 19 months, the patient had been well, had cared for her family, and had no symptoms of decompensation in spite of the fact that she was taking no cardiac medicaments. She was perfectly well until an hour and a half before admission, when dyspnea, cyanosis,

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From the Department of Medicine, Cook County Hospital.

Dr. P. Szantos examined and reported on the pathological material and Dr. M. Franklin assisted in the preparation of this manuscript.

Because of space limitations, some of the bibliographic footnotes have been omitted in THE JOURNAL and will appear in the authors' reprints.

1. Virchow, R.: Gesammel te Abhandlungen zur wissenschaftlichen Medicine, Frankfurt, A. Meidinger Company, 1856, p. 711.

2. Saphir, O.: Coronary Embolism, Am. Heart J. **8**: 312 (Feb.) 1933.

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6. Rodario, L. do: Embolie coronaire avec rupture cardiaque, Méd. contemp. **68**: 525 (Oct.) 1950.

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10. Glushien, A. S.; Reiter, M. D., and Fischer, H.: Coronary Embolism (Intra Vitam Diagnosis) and Necrotizing Renal Papillitis. Case Report, Ann. Int. Med. **36**: 679 (Feb.) (pt. 2) 1952.

11. Walker, B.: Coronary Embolism and Coronary Occlusion in Subacute Bacterial Endocarditis, Brit. Heart J. **14**: 144 (Jan.) 1952.

severe palpitation, and respiratory distress developed. After being seen by a local physician, she was transported to the hospital in a pole ambulance with oxygen.

Physical examination showed an apprehensive, conscious white woman in acute cardiorespiratory distress. She was cyanotic and dsypneic, and her skin was cold and moist. Blood pressure was 80/10 mm. Hg; temperature 98.5 F; respirations 40 per minute; and pulse thready and irregular, about 48 to 50 per minute. Neck veins were engorged. Lungs were full of inspiratory and expiratory rales and coarse rhonchi. The patient was frothing at the mouth. Apical heart rate was 180 per minute and irregular; it was too rapid to detect any adventitious sounds. A marked precordial heave was noted. The abdomen was soft and not distended. The liver was felt 3 cm. below the costal margin; its edge was round; and the organ was only slightly tender. The extremities were cold and clammy but not edematous. Urinalysis revealed a specific gravity of 1.014, no albumin, no sugar, and 1 to 2 white blood cells per high power field.

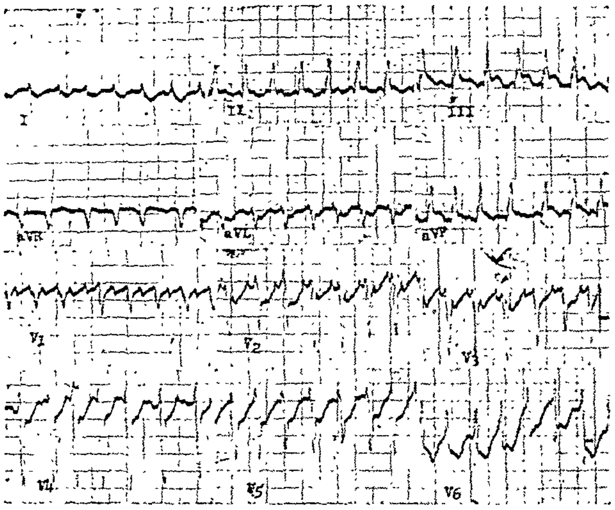

Fig. 1.—Standard limb leads, unipolar limb leads, and unipolar precordial leads showing an acute posterior myocardial infarction.

The patient was given 95% alcohol aerosol in oxygen immediately on admission and, also, aminophylline, 7 grains (0.45 gm.), and digitalis (Digalen), 3 grains (0.19 gm.), intravenously.

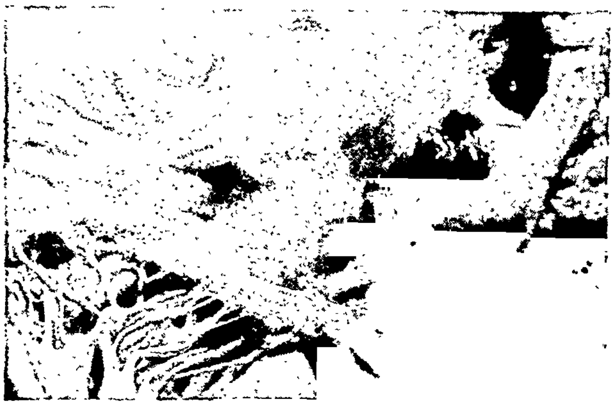

Fig. 2.—Thickened and deformed cusps of the mitral valve and the mural thrombus in the left auricle.

An electrocardiogram was made. It showed auricular fibrillation, with a rapid ventricular response, prominent Q waves in leads 2, 3, and aVF, elevated S-T segments in leads 2, 3, and aVF, and reciprocal depression of S-T segments in leads 1, aVL, V_2, V_3, V_4, V_5, and V_6 indicative of an acute posterior myocardial infarction (fig. 1). A diagnosis was made of recent myocardial infarction of the posterior wall caused by coronary embolism resulting from a thrombus formed in a fibrillating left auricle in a rheumatic heart with mitral stenosis.

The patient's course was rapidly downhill. She was given another 3 grains of digitalis intravenously. Heart tones became imperceptible. An intracardiac injection of 2 cc. of 1:1,000 solution of epinephrine reinstituted an irregular cardiac beat that persisted for two to three minutes until apnea began and then faded. Despite all therapy, the patient died at 10:30 a. m. on Aug. 28, 1952.

At autopsy, the body was cyanotic, and the chest was somewhat emphysematous. Each pleural cavity contained approximately 2,000 cc. of serous fluid, and the pericardial cavity contained 80 cc. of serous fluid.

The heart weighed 350 gm. and was markedly enlarged. Apex and base diameters were 12 cm., and transverse diameter at the base was 10 cm. The epicardium was smooth and glistening, and there was a normal amount of subepicardial fat tissue. The myocardium of the right ventricle was 3 mm. thick and that of left ventricle 14 mm. The tricuspid valve measured 13 cm. in circumference and was not abnormal. Pulmonic valves measured 8 cm. in circumference and were normal. Mitral valve measured 5 cm. in circumference. The valve leaflets were markedly thickened, with shortening and thickening of papillary muscles and chordae tendinae (fig. 2). The aortic valve measured 8 cm.; the cusps were smooth and normal. There was little atherosclerosis of the aorta. The left auricle was greatly dilated and hypertrophied. In the left auricular appendage, a thrombus was noted (fig. 2). The coronary vessels showed no arteriosclerotic changes. In the left circumflex branch of the left coronary artery, an embolus measuring 4 by 2 by 2 mm. was seen that completely occluded the lumen of this vessel (fig. 3). The embolus was laminated and was not adherent to the vessel wall. The myocardium of the posterior wall of the heart showed a large area of tissue that appeared paler and drier than normal.

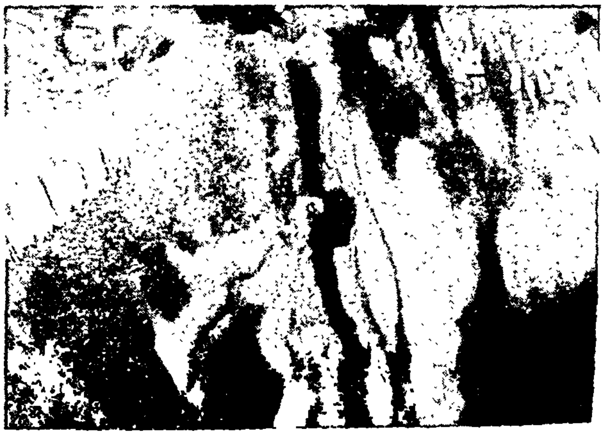

Fig. 3.—Embolus in the circumflex branch of the left coronary artery.

Both lungs weighed 1,300 gm. and were heavier than normal. Cut section revealed a large amount of frothy, sanguinous fluid. The pulmonary arteries were clear of thrombi. The liver weighed 1,600 cm., showed considerable blunting of the inferior margin, and was severely congested. The spleen weighed 300 gm. and was markedly congested. The only finding in the esophagus, stomach, and small and large bowels was congested mucosal surfaces. The adrenal glands were normal. Kidneys weighed 300 gm. The capsule stripped with ease and revealed a smooth cortical surface; a cut section showed evidence of congestion. The uterus was that of a multipara and was normal. Both tubes were cut and ligated in the isthmic portion. The left ovary contained a corpus luteum. The brain weighed 1,000 gm. and was normal.

Microscopic section from the area of infarction in the left ventricle revealed fragmentation of the myocardium. The nuclei of some of the fibers were pyknotic; the cross striations, however, were still preserved. The interstitial connective tissue was edematous. The capillaries and thin-walled veins were markedly engorged.

COMMENT

Embolic occlusion of the coronary arteries is a rare occurrence. The infrequency of this condition has been attributed to (*a*) the difference between the caliber of the aorta and that of the coronary, (*b*) the situation of the coronary vessels at the root of the aorta, (*c*) the right angle emergence of the coronary arteries, (*d*) the bulk and swiftness of the blood current in this portion of the aorta, and (*e*) the fact that the major part of coronary filling occurs during diastole. In reviewing the literature, there appear to be eight possible sources of emboli that may occlude the coronary arteries. The sources of emboli in the cases reviewed in the literature are listed in the table. In our patient, the embolus originated in the left auricular appendage and was sterile.

According to Garvin,[12] in 25% of all cases of heart disease, there are mural thrombi in the left side of the heart, which predispose it to the occurrence of embolism. Small emboli cause no conspicuous symptoms. Only when they are large enough to occlude big arteries or lodge in organs in which even relatively small infarcts produce grave symptoms does their presence become noticeable. The two organs most sensitive to infarction are the brain and the heart. In cardiac patients, evidence of cerebral embolism occurs commonly; coronary embolism occurs infrequently. When the peculiarities of the coronary circulation as previously enumerated are considered, infrequent occurrence of the latter is not remarkable.

Causes of Emboli in Cases of Coronary Embolism Reported in the Literature

Author	Bacterial Vegetations on Mitral or Aortic Valve Due to Bacterial Endocarditis	Mural Thrombi on Arteriosclerotic or Syphilitic Lesion in Aorta	Intraventricular Mural Thrombi	Paradoxical Embolism (Thrombi in Peripheral Veins)	Thrombus or Atheromatous Material in Coronary Artery	Thrombi in Pulmonary Veins	Air Embolism	Calcified Aortic Valve
Mussafia [5]	1	..	..	..	..	..	..	..
Moragues et al.[4]	20	10	5	4	2	2	..	1
Facquet et al.[7]	..	..	..	..	..	..	1	..
Ravera [8]	1	..	..	..	..	..	..	..
Aguiar et al.[9]	..	..	..	..	1	..	..	..
Glushien et al.[10]	1	..	..	..	..	..	..	..
Walker [11]	1	..	..	..	..	..	..	..
Totals	24	10	5	4	3	2	1	1

Coronary occlusion due to embolism not only is a very rare occurrence but is rarely diagnosed during life. In only three [13] cases was the correct diagnosis made during life; all three were cases of bacterial endocarditis; in all three, the emboli were not sterile; and all three patients lived long enough to reveal distinctive clinical and electrocardiographic features.

Our case was unique in several respects. The embolus originated in a thrombus in left auricle, and bacterial endocarditis was not present. Both the thrombus and the embolus found in the coronary artery were sterile. The coronary embolism involved the circumflex branch of the left coronary, a site of occlusion by embolus hitherto not reported in the literature. Our patient lived only a little more than one hour, the shortest survival time among cases of coronary embolism that were correctly diagnosed before death.

We reconstructed the sequence of events in our case as follows. The enlargement of the left auricle followed mitral stenosis, and, as frequently happens, a thrombus formed in the cavity of left auricle, particularly in the appendage. Also, auricular fibrillation might have contributed to the formation of the auricular thrombus. From the thrombus in the left auricle came the embolus that lodged in the circumflex branch of the left coronary artery and that caused posterior myocardial infarction, acute left ventricular failure, and death. Although the myocardial infarction was evident grossly, we failed to demonstrate microscopically any definite necrosis of the myocardium in the infarcted area. Apparently the patient succumbed to the shock of acute occlusion of the coronary artery so soon that there was no time for tissue necrosis to become evident. In patients who die within 12 hours after a coronary occlusion, histological evidence of infarct in the heart may not be found.[14]

Although embolic occlusion of the coronary arteries is very uncommon, it is probably commoner than the few reports in the literature would indicate.[3] Hamman [3] conservatively estimated that from 1 to 2% of the cases of coronary occlusion are due to embolism; therefore, it is reasonable to assume that only a small number of the cases encountered at autopsy have been reported. When symptoms are minimal or atypical, coronary embolism is seldom suspected, and, if the patient survives, especially a person in the older age group, the diagnosis of occlusion caused by embolism cannot be proved. How often recovery occurs after coronary embolism is not known; however, probable instances have been reported.[15] It is predicted that the diagnosis of coronary embolism will be made more frequently as interest and familiarity incite more thorough investigation into each case of coronary occlusion, especially in young persons.

SUMMARY

A case of coronary embolism is reported, and a brief review of the literature is presented. This is the fourth case of coronary embolism that was diagnosed while the patient was alive. This patient had rheumatic heart disease, with mitral stenosis. Bacterial endocarditis was not present, and the source of the embolus was a left auricular thrombus. The occluded coronary artery was the left circumflex branch.

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[12] Garvin, C. F., and Work, J. L.: Coronary Embolism: Report of Three Cases, Am. Heart J. 18: 747 (Dec.) 1939.

Fibrosis of the Sphincter of Oddi.—Obstruction to the free flow of bile through the lower end of the common duct due to lesions of the ampulla, the papilla of Vater, and the sphincter of Oddi occurs in a sufficient number of patients to make this a problem of real clinical importance. This obstruction can occur with or without pathologic conditions elsewhere in the extrahepatic biliary tract but is usually encountered in patients with gallstones. This intermittent or persistent obstruction is responsible for an appreciable number of the unsatisfactory results following cholecystectomy for cholelithiasis.—Richard B. Cattell, M.D., and Bentley P. Colcock, M.D., *Annals of Surgery*, June, 1953.

severe palpitation, and respiratory distress developed. After being seen by a local physician, she was transported to the hospital in a pole ambulance with oxygen.

Physical examination showed an apprehensive, conscious white woman in acute cardiorespiratory distress. She was cyanotic and dsypneic, and her skin was cold and moist. Blood pressure was 80/10 mm. Hg; temperature 98.5 F; respirations 40 per minute; and pulse thready and irregular, about 48 to 50 per minute. Neck veins were engorged. Lungs were full of inspiratory and expiratory rales and coarse rhonchi. The patient was frothing at the mouth. Apical heart rate was 180 per minute and irregular; it was too rapid to detect any adventitious sounds. A marked precordial heave was noted. The abdomen was soft and not distended. The liver was felt 3 cm. below the costal margin; its edge was round; and the organ was only slightly tender. The extremities were cold and clammy but not edematous. Urinalysis revealed a specific gravity of 1.014, no albumin, no sugar, and 1 to 2 white blood cells per high power field.

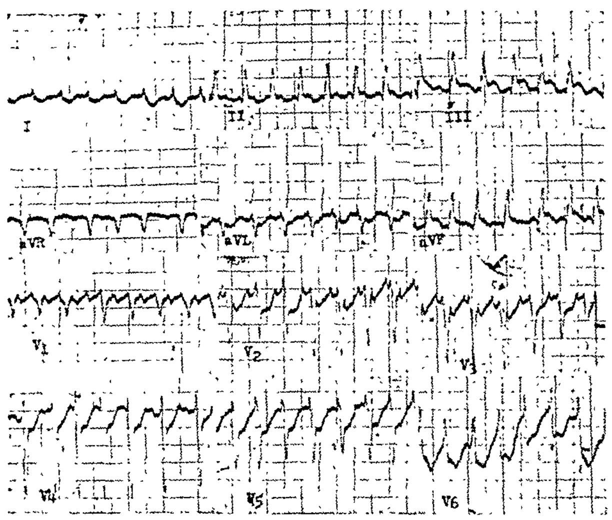

Fig. 1.—Standard limb leads, unipolar limb leads, and unipolar precordial leads showing an acute posterior myocardial infarction.

The patient was given 95% alcohol aerosol in oxygen immediately on admission and, also, aminophylline, 7 grains (0.45 gm.), and digitalis (Digalen), 3 grains (0.19 gm.), intravenously.

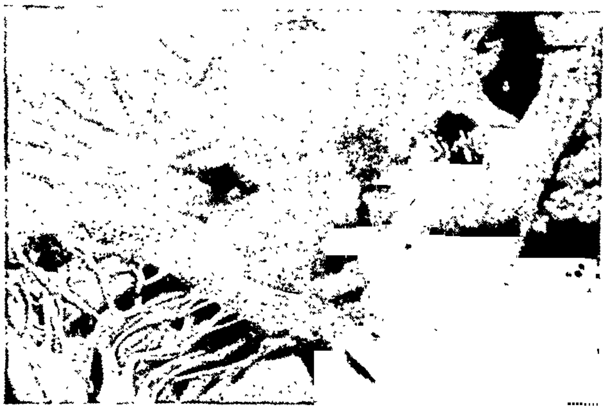

Fig. 2.—Thickened and deformed cusps of the mitral valve and the mural thrombus in the left auricle.

An electrocardiogram was made. It showed auricular fibrillation, with a rapid ventricular response, prominent Q waves in leads 2, 3, and aVF, elevated S-T segments in leads 2, 3, and aVF, and reciprocal depression of S-T segments in leads 1, aVL, V_2, V_3, V_4, V_6, and V_6 indicative of an acute posterior myocardial infarction (fig. 1). A diagnosis was made of recent myocardial infarction of the posterior wall caused by coronary embolism resulting from a thrombus formed in a fibrillating left auricle in a rheumatic heart with mitral stenosis.

The patient's course was rapidly downhill. She was given another 3 grains of digitalis intravenously. Heart tones became imperceptible. An intracardiac injection of 2 cc. of 1:1,000 solution of epinephrine reinstituted an irregular cardiac beat that persisted for two to three minutes until apnea began and then faded. Despite all therapy, the patient died at 10:30 a. m. on Aug. 28, 1952.

At autopsy, the body was cyanotic, and the chest was somewhat emphysematous. Each pleural cavity contained approximately 2,000 cc. of serous fluid, and the pericardial cavity contained 80 cc. of serous fluid.

The heart weighed 350 gm. and was markedly enlarged. Apex and base diameters were 12 cm., and transverse diameter at the base was 10 cm. The epicardium was smooth and glistening, and there was a normal amount of subepicardial fat tissue. The myocardium of the right ventricle was 3 mm. thick and that of left ventricle 14 mm. The tricuspid valve measured 13 cm. in circumference and was not abnormal. Pulmonic valves measured 8 cm. in circumference and were normal. Mitral valve measured 5 cm. in circumference. The valve leaflets were markedly thickened, with shortening and thickening of papillary muscles and chordae tendinae (fig. 2). The aortic valve measured 8 cm.; the cusps were smooth and normal. There was little atherosclerosis of the aorta. The left auricle was greatly dilated and hypertrophied. In the left auricular appendage, a thrombus was noted (fig. 2). The coronary vessels showed no arteriosclerotic changes. In the left circumflex branch of the left coronary artery, an embolus measuring 4 by 2 by 2 mm. was seen that completely occluded the lumen of this vessel (fig. 3). The embolus was laminated and was not adherent to the vessel wall. The myocardium of the posterior wall of the heart showed a large area of tissue that appeared paler and drier than normal.

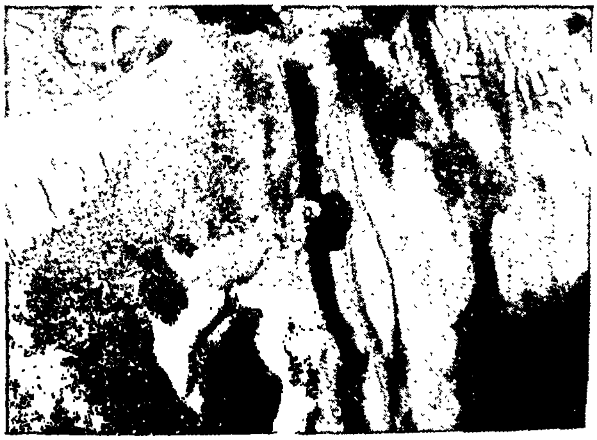

Fig. 3.—Embolus in the circumflex branch of the left coronary artery.

Both lungs weighed 1,300 gm. and were heavier than normal. Cut section revealed a large amount of frothy, sanguinous fluid. The pulmonary arteries were clear of thrombi. The liver weighed 1,600 cm., showed considerable blunting of the inferior margin, and was severely congested. The spleen weighed 300 gm. and was markedly congested. The only finding in the esophagus, stomach, and small and large bowels was congested mucosal surfaces. The adrenal glands were normal. Kidneys weighed 300 gm. The capsule stripped with ease and revealed a smooth cortical surface; a cut section showed evidence of congestion. The uterus was that of a multipara and was normal. Both tubes were cut and ligated in the isthmic portion. The left ovary contained a corpus luteum. The brain weighed 1,000 gm. and was normal.

Microscopic section from the area of infarction in the left ventricle revealed fragmentation of the myocardium. The nuclei of some of the fibers were pyknotic; the cross striations, however, were still preserved. The interstitial connective tissue was edematous. The capillaries and thin-walled veins were markedly engorged.

COMMENT

Embolic occlusion of the coronary arteries is a rare occurrence. The infrequency of this condition has been attributed to (*a*) the difference between the caliber of the aorta and that of the coronary, (*b*) the situation of the coronary vessels at the root of the aorta, (*c*) the right angle emergence of the coronary arteries, (*d*) the bulk and swiftness of the blood current in this portion of the aorta, and (*e*) the fact that the major part of coronary filling occurs during diastole. In reviewing the literature, there appear to be eight possible sources of emboli that may occlude the coronary arteries. The sources of emboli in the cases reviewed in the literature are listed in the table. In our patient, the embolus originated in the left auricular appendage and was sterile.

According to Garvin,[12] in 25% of all cases of heart disease, there are mural thrombi in the left side of the heart, which predispose it to the occurrence of embolism. Small emboli cause no conspicuous symptoms. Only when they are large enough to occlude big arteries or lodge in organs in which even relatively small infarcts produce grave symptoms does their presence become noticeable. The two organs most sensitive to infarction are the brain and the heart. In cardiac patients, evidence of cerebral embolism occurs commonly; coronary embolism occurs infrequently. When the peculiarities of the coronary circulation as previously enumerated are considered, infrequent occurrence of the latter is not remarkable.

Causes of Emboli in Cases of Coronary Embolism Reported in the Literature

Author	Bacterial Vegetations on Mitral or Aortic Valve Due to Bacterial Endocarditis	Mural Thrombi on Arteriosclerotic or Syphilitic Lesion in Aorta	Intraventricular Mural Thrombi	Paradoxical Embolism (Thrombi in Peripheral Veins)	Thrombus or Atheromatous Material in Coronary Artery	Thrombi in Pulmonary Veins	Air Embolism	Calcified Aortic Valve
Mussafia [5]	1	..	..	..	..	..	..	..
Moragues et al.[4]	20	10	5	4	2	2	..	1
Facquet et al.[7]	..	..	..	..	..	..	1	..
Ravera [8]	1	..	..	..	..	..	..	..
Aguiar et al.[9]	..	..	..	..	1	..	..	..
Glushien et al.[10]	1	..	..	..	..	..	..	..
Walker [11]	1	..	..	..	..	..	..	..
Totals	24	10	5	4	3	2	1	1

Coronary occlusion due to embolism not only is a very rare occurrence but is rarely diagnosed during life. In only three [13] cases was the correct diagnosis made during life; all three were cases of bacterial endocarditis; in all three, the emboli were not sterile; and all three patients lived long enough to reveal distinctive clinical and electrocardiographic features.

Our case was unique in several respects. The embolus originated in a thrombus in left auricle, and bacterial endocarditis was not present. Both the thrombus and the embolus found in the coronary artery were sterile. The coronary embolism involved the circumflex branch of the left coronary, a site of occlusion by embolus hitherto not reported in the literature. Our patient lived only a little more than one hour, the shortest survival time among cases of coronary embolism that were correctly diagnosed before death.

We reconstructed the sequence of events in our case as follows. The enlargement of the left auricle followed mitral stenosis, and, as frequently happens, a thrombus formed in the cavity of left auricle, particularly in the appendage. Also, auricular fibrillation might have contributed to the formation of the auricular thrombus. From the thrombus in the left auricle came the embolus that lodged in the circumflex branch of the left coronary artery and that caused posterior myocardial infarction, acute left ventricular failure, and death. Although the myocardial infarction was evident grossly, we failed to demonstrate microscopically any definite necrosis of the myocardium in the infarcted area. Apparently the patient succumbed to the shock of acute occlusion of the coronary artery so soon that there was no time for tissue necrosis to become evident. In patients who die within 12 hours after a coronary occlusion, histological evidence of infarct in the heart may not be found.[14]

Although embolic occlusion of the coronary arteries is very uncommon, it is probably commoner than the few reports in the literature would indicate.[3] Hamman [3] conservatively estimated that from 1 to 2% of the cases of coronary occlusion are due to embolism; therefore, it is reasonable to assume that only a small number of the cases encountered at autopsy have been reported. When symptoms are minimal or atypical, coronary embolism is seldom suspected, and, if the patient survives, especially a person in the older age group, the diagnosis of occlusion caused by embolism cannot be proved. How often recovery occurs after coronary embolism is not known; however, probable instances have been reported.[15] It is predicted that the diagnosis of coronary embolism will be made more frequently as interest and familiarity incite more thorough investigation into each case of coronary occlusion, especially in young persons.

SUMMARY

A case of coronary embolism is reported, and a brief review of the literature is presented. This is the fourth case of coronary embolism that was diagnosed while the patient was alive. This patient had rheumatic heart disease, with mitral stenosis. Bacterial endocarditis was not present, and the source of the embolus was a left auricular thrombus. The occluded coronary artery was the left circumflex branch.

1835 W. Harrison St. (12) (Dr. Cheng).

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[12] Garvin, C. F., and Work, J. L.: Coronary Embolism: Report of Three Cases, Am. Heart J. 18: 747 (Dec.) 1939.

Fibrosis of the Sphincter of Oddi.—Obstruction to the free flow of bile through the lower end of the common duct due to lesions of the ampulla, the papilla of Vater, and the sphincter of Oddi occurs in a sufficient number of patients to make this a problem of real clinical importance. This obstruction can occur with or without pathologic conditions elsewhere in the extrahepatic biliary tract but is usually encountered in patients with gallstones. This intermittent or persistent obstruction is responsible for an appreciable number of the unsatisfactory results following cholecystectomy for cholelithiasis.—Richard B. Cattell, M.D., and Bentley P. Colcock, M.D., *Annals of Surgery*, June, 1953.

RUPTURE OF THE AORTIC VALVE

DISAPPEARING DIASTOLIC PRESSURE AS A DIAGNOSTIC SIGN

William B. Bean, M.D.
and
Martha C. Schmidt, M.D., Iowa City

Rupture of the aortic valve falls into two distinct clinical patterns; the first is rupture of the normal valve after some unusual stress or strain, particularly that of heavy lifting [1]; the other occurs when the valve is disorganized by bacterial endocarditis and erosion leads to rupture.[2] We wish to present an example of the second kind and emphasize a physical sign that may be helpful in detecting the aortic rupture clinically; namely, a sudden fall or complete disappearance of the diastolic blood pressure. Clinical signs of established aortic insufficiency are well known, but the observation of a normal diastolic pressure that declines significantly or disappears entirely has not been emphasized.

REPORT OF A CASE

L. C., a 44-year-old man, was admitted to the medical service of the University Hospitals because of chest pain and fever. Four weeks before admission he had a toothache and a swollen upper lip. Before he was able to consult a dentist, he was seized with a shaking chill, and his temperature rose to 104 F. His physician gave him 400,000 units of penicillin daily for a 10 day period. During this time the patient felt very much better, but, in spite of treatment, he had another chill and a fever of 105 F a week after the first chill. During the three week period after the first chill, he had four more similar episodes. He was then admitted to the local hospital. Laboratory studies revealed a hemoglobin level of 67%, red blood count of 4 million and sedimentation rate of 44 mm. per hour. Agglutination tests for typhoid and brucellosis were negative. Three days before he was transferred to the University Hospitals, the patient became orthopneic and had precordial pain that radiated to the back and increased on inspiration. The day before admission he noted a tender, red, swollen area approximately 3 cm. in diameter on the dorsum of the right foot. Sulfadiazine had been given along with penicillin.

On the patient's admission to the University Hospitals, physical examination revealed a seriously ill, orthopneic, dyspneic man who was perspiring freely. The neck veins were slightly engorged. There was decrease in resonance and tactile fremitus over the axilla on the left. Breath sounds were distant, with wheezes throughout both lungs and numerous inspiratory rales at both bases. The heart was enlarged, the left border extending to the anterior axillary line. A soft systolic and a grade 2 diastolic murmur were heard at the apex. There was an occasional extrasystole, but otherwise the heart rhythm was regular. The liver, slightly tender, was palpable two inches below the costal margin on the right. The erythematous area on the dorsum of the right foot was noted. Temperature was 104 F, pulse 104, respirations 20, and blood pressure was 120/58 mm. Hg. The history revealed that the patient had had *migratory arthritis* when he was 27 years old, and, 10 years prior to admission, he had been rejected for military duty because of "two leaky heart valves."

Laboratory studies revealed a hemoglobin of 8.8 gm. per 100 cc., red blood cell count of 3.2 million per cubic millimeter, and white blood cell count of 13,200 per cubic millimeter, with 74% granulocytes. Sedimentation rate was 64 mm. per hour. The urine had a specific gravity of 1.013 and 1+ albumin. The sediment contained numerous sulfadiazine crystals. A roentgenogram of the chest showed the heart to be enlarged both to the right and the left, with pulmonary vascular congestion. A small pleural effusion was seen in the left costophrenic angle. The electrocardiogram showed auricular fibrillation. Daily blood cultures were obtained, and all were reported subsequently as negative for micro-organisms. The patient was digitalized and put on a regimen of penicillin and oxytetracycline (Terramycin). On the *fifth hospital day, petechiae appeared on the soft palate*, and a grade 3 precordial friction rub appeared, obscuring the murmurs. The heart rate slowed, and the patient appeared better, but he continued to have a fever of 102 F daily. Oxytetracycline therapy was discontinued, and streptomycin therapy was begun. We suspected that active rheumatic heart disease might be present in addition to subacute bacterial endocarditis. On the 11th hospital day, the patient complained suddenly of pain in the chest. Examination revealed the pulse to be 92 and the blood pressure 170/10 mm. Hg. Broadbent's sign was present. By the next day the heart had enlarged greatly, and dyspnea was an increasingly troublesome symptom. The pericardial friction rub was louder and obscured the underlying murmurs over the entire precordium. Pulsations of the carotid and subclavian arteries became prominent. Corrigan's pulse, capillary pulsation, and pistol-shot sounds appeared. A roentgenogram of the chest revealed great increase in the enlargement of the cardiac silhouette, in addition to increasing pulmonary congestion (fig. 1). Veins in the neck were distended, and the roentgenologic studies were consistent with pericardial effusion. A pericardial tap yielded 180 cc. of bloody fluid that had a specific gravity of 1.015 and contained 3,300 leukocytes. Corticotropin, 150 mg. daily, was added to the treatment program. The next day the pericardial friction rub, though still loud, was confined to a 3 cm. area at the level of the fifth intercostal space to the left of the sternum. The fever continued. On the 14th hospital day, the blood pressure was 140/0 mm. Hg, and there was no clinical change. On the next day, four days after the sudden drop in the diastolic pressure, the patient suddenly went into peripheral vascular collapse and died. A clinical diagnosis of rupture of the aortic valve was made, and it was suspected that, *in addition to bacterial endocarditis, there might have been active* rheumatic fever.

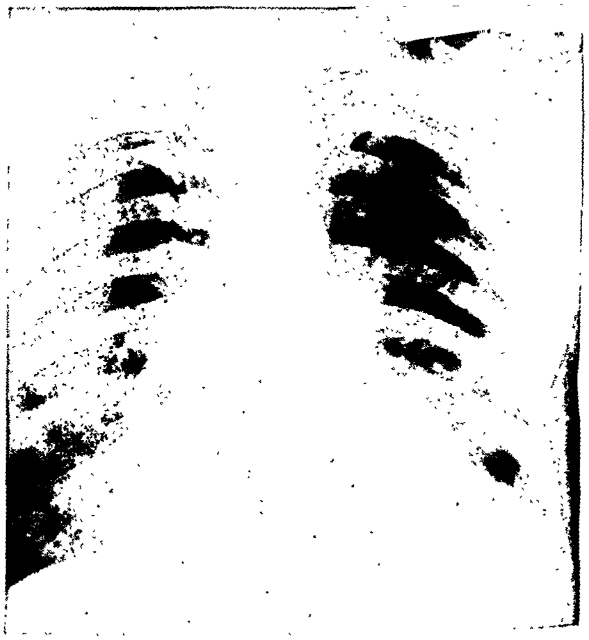

Fig. 1.—Roentgenogram of the chest on the patient's admission to University Hospitals.

Autopsy revealed the pericardial sac to be distended with approximately 2,000 cc. of grossly bloody fluid. The heart weighed 900 gm. and was covered with dense, recent, fibrinous

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From the Department of Internal Medicine of the College of Medicine, State University of Iowa, and the University Hospitals.

[1] Bean, W. B., and Mohaupt, F. X.: Rupture of the Aortic Valve, J. A. M. A. 150: 92 (Sept. 13) 1952.

[2] Carroll, D.: Non-Traumatic Aortic Valve Rupture, Bull. Johns Hopkins Hosp. 89: 309 (Oct.) 1951.

adhesions. The mitral valve leaflets were thickened and adherent along the margin, the valve orifice admitting only the tip of the index finger. The aortic valve cusps were irregularly thickened and partly calcified. The anterior cusp was the most seriously diseased. The ventricular surfaces of the anterior cusp and the left posterior cusp were covered with friable blood clot and debris. The body of the anterior cusp was torn with a ragged defect approximately 7 mm. in diameter. There was another perforation through the anterior and the adherent left posterior cusp that entered an opening between the sinuses of these cusps. There was a defect in the intima of the sinus of Valsalva of the anterior cusp that did not extend through the aortic wall. No gross communication could be found between the lumen of the aorta and the pericardial cavity. The left lower lobe of the lung was atelectatic. The liver and spleen were congested. The left kidney and the spleen contained several infarcts. Microscopic sections of the heart showed evidence of old rheumatic pancarditis. The vegetations of the aortic valve contained colonies of bacteria. Postmortem cultures from the heart valve yielded Pseudomonas aeruginosa and nonhemolytic streptococci.

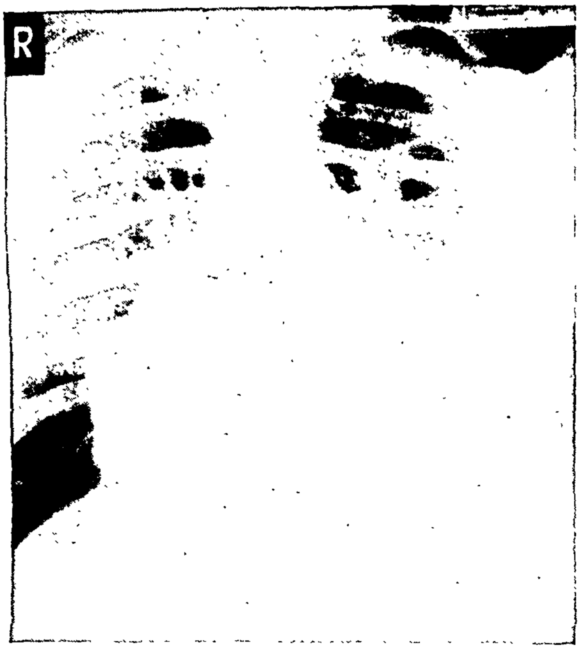

Fig. 2.—Roentgenogram of the chest one day after rupture of the aortic valve, before removal of fluid from the pericardium.

COMMENT

The diagnosis of rupture of the aortic valve in the course of subacute bacterial endocarditis has been a difficult clinical problem. The complexity is increased by the notorious variability of murmurs, which change with distortion or dilatation of the valve and the vegetation. Curious murmurs may come and go. The change of a murmur or the occurrence of a new murmur, therefore, *is not a sure sign of aortic valve rupture.* More emphasis has been given to the abrupt onset of pain in the chest. This was a prominent symptom in our patient, but its possible connection with pericarditis was hard to evaluate. Likewise, the appearance or increase of congestive failure is a helpful sign, and this was dramatic in our patient. But the most significant clinical change was the fading away of diastolic arterial pressure and the appearance of all the peripheral signs of aortic valve leak—Corrigan's pulse, capillary pulsation, and pistol-shot sounds. The sudden appearance of these signs with the advent of aortic regurgitation casts some doubt on Lewis' interpretation of such signs as a reflection of peripheral vasodilatation rather than central reflux.[3] At least the signs first appeared when the valve ruptured and the diastolic pressure vanished.

The great outpouring of bloody pericardial fluid could not be shown to have followed a dissection or rupture *through the coats of the aorta or through the heart muscle.* This possibility exists. Undoubtedly, congestive failure contributed some transudate. Anderson, Christenson, and Edwards have demonstrated hemopericardium of the myocardial infarction without rupture when "bleeding arose from pericarditis in areas removed from the infarcted myocardium."[4] Such a process may have been responsible in this case.

Is there any use in being able to discover rupture of the aortic valve during life, other than for the clinician's pride? That the diagnosis is truly difficult is indicated by the fact that only one of Carroll's 15 cases was recognized before autopsy.[2] The time may come when surgeons will be able to repair such terrible damage and save the patient.

SUMMARY

A case of rupture of the aortic valve, diagnosed before death, is reported. The abrupt decline and disappearance of the diastolic arterial blood pressure should be emphasized along with sudden pain, the advent or increase in congestive failure, and the appearance or change of an aortic diastolic murmur, as an important diagnostic sign of rupture of a diseased aortic valve in bacterial endocarditis.

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[3] Lewis, T.: Diseases of the Heart, Described for Students and Practitioners, New York, The Macmillan Company, 1933.

[4] Anderson, M. W.; Christenson, N. A., and Edwards, J. E.: Hemopericardium Complicating Myocardial Infarction in the Absence of Cardiac Rupture, A. M. A. Arch. Int. Med. 90: 634 (Nov.) 1952.

DISSEMINATED LUPUS ERYTHEMATOSUS WITH INVOLVEMENT OF THE SPINAL CORD

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A review of the literature on involvement of the central nervous system in disseminated lupus erythematosus revealed no case of focal involvement of the spinal cord in addition to the other protean manifestations. Since Hebra and Kaposi [1] and Bowen [2] described mental changes associated with this disease, Daly [3] and Sedgwick and Von Hagen [4] have more completely summarized the clinical and pathological findings. They reported toxic delirium and coma in association with the anatomic alterations of diffuse nonspecific encephalitis, as well as

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From the Department of Pathology, University of Wisconsin Medical School.

[1] Hebra, F., and Kaposi, M.: Diseases of the Skin, translated and edited by T. Warren, London, The New Sydenham Society, 1875, vol. [illegible] pp. 14-47.

[2] Bowen, J. T.: Twentieth Century Practice of Medicine, New York, William Wood & Company, 1896, vol. 5, pp. 691-708.

[3] Daly, D : The Central Nervous System in Acute Disseminate Lupus Erythematosus, J. Nerv. & Ment. Dis. 102: 461-465, 1945.

[4] Sedgwick, R. P., and Von Hagen, K. O.: The Neurological Manifestations of Lupus Erythematosus and Periarteritis Nodosa: Report of 10 Cases, Bull. Los Angeles Neurol. Soc. 13: 129-142, 1948.

vascular changes and thrombosis producing myelomalacia of the nervous parenchyma secondary to disturbances in the vascular supply. The following case is reported because of the unusual finding of vascular changes with thrombosis of the meningeal vessels resulting in ischemic necrosis of the lumbar cord.

REPORT OF A CASE

A 19-year-old white girl who had disseminated lupus erythematosus was admitted to the University Hospitals for the sixth time on May 3, 1952. She had responded fairly well to cortisone therapy until an exposure to the sun in April caused an exacerbation of the "butterfly" rash, joint pains, and fever. Immediately prior to hospitalization she experienced numbness and tingling of both lower extremities, which gradually extended up to the trunk with progressive weakness, marked diminution in motility, and difficulty with urination.

Physical Findings.—Physical examination revealed an acutely ill patient with a maculopapular erythematous rash of "butterfly" pattern over the face. Transient rhonchi were noted occasionally on the right side. The liver was palpated 2 cm. below the right costal margin, and the spleen 1 cm. below the left costal margin. The reflexes were generally hypoactive. There was considerable loss of sensitivity to pin prick in the perianal area, and a Babinski reaction was elicited on the left.

Treatment had consisted of 50 mg. of cortisone daily, which was later increased to 75 mg. to control intermittent fever. On admission the patient was given 300,000 units of crystalline procaine penicillin (Duracillin) twice daily to prevent possible infection and was given corticotropin by continuous intravenous drip. Several days later crystalline procaine penicillin and *p*-aminobenzoic acid, 3 gm. each, three times daily, were given. There was no response to therapy. The fever continued, and the patient became progressively worse. She became affected with generalized twitching and died on June 17, 1952.

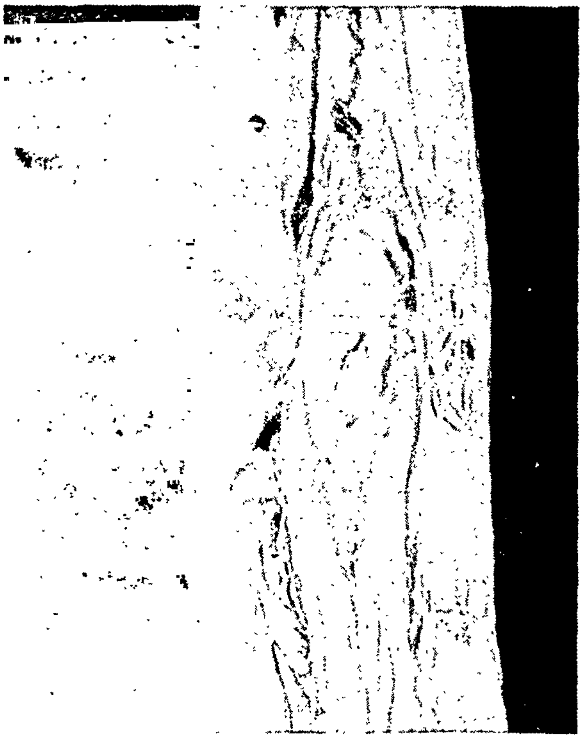

Fig. 1.—Focal swelling with infarction in the lumbar spinal cord evident on reflection of the dura.

Laboratory Data.—A positive lupus erythematosus phenomenon, albuminuria, persistent leukopenia, and normal prothrombin level were found. Serum proteins were 7.1 gm. per 100 cc., with 3.6 gm. of albumin per 100 cc. and 3.5 gm. of globulin per 100 cc. The cerebrospinal fluid protein was 175 mg. per 100 cc., blood sugar 39 mg. per 100 cc., and serum chloride 106 mEq. per liter. There were 16 white cells, most of which were lymphocytes. Result of the colloidal gold test was 5555432100, and the Wasserman reaction was negative. The Queckenstedt reaction was normal. The L. E. cells were identified by the Haserick[5] phenomenon. The mature neutrophilic leukocytes contained within the cell membrane one or more masses of nuclear material, which stained a bluish-purple color. These masses are theoretically composed of a depolymerized desoxyribose nucleic acid. The formation of the L. E. cell occurs when the blood is exposed to air outside of the body, in conjunction with the gamma globulin of the plasma of the patient. Since approximately 96% specificity can be correlated with the finding of the L. E. cell, the phenomenon in this case supported the diagnosis.

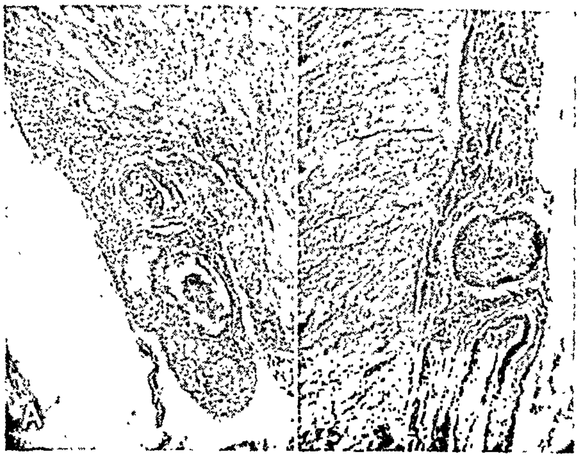

Fig. 2.—*A*, vasculitis of the meningeal vessels in the area of spinal cord swelling, with fibrinoid deposition in the vessel wall and degenerative change of the adjacent cord (× 100). *B*, a recanalized thrombus within a meningeal vessel adjacent to the area of spinal cord myelomalacia (× 100).

Autopsy Findings.—At necropsy the patient appeared older than her stated age and had a 3 + pitting edema of the lower extremities. The abdomen was distended and tympanitic. No rash was evident on the face.

When the thorax was opened, multiple fibrous adhesions were found between the visceral and parietal pleura of both chest cavities. The heart weighed 250 gm. and presented at the point of attachment of one chorda tendinea of the mitral valve a white area of discoloration, which on microscopic examination revealed a focal myocarditis filled with many inflammatory cells and scattered clusters of cocci. On culture these were identified as Staphylococcus aureus. The remainder of the heart was essentially normal. Both the right and left lungs were approximately twice normal weight. The lungs revealed areas of atelectasis, and on section a considerable amount of fluid was expressed. The cut surface revealed a confluent bronchopneumonic process involving the middle and lower right lobes and the lower left lobe.

The spleen was enlarged and weighed 500 gm. The surface presented multiple infarcts, the largest measuring approximately 3 cm. across. The pulp was firm and nonfriable, and the Malpighian corpuscles were readily identified. On microscopic examination the areas of infarction contained clusters of cocci. The liver weighed 1,750 gm. and was grossly normal as were the gallbladder, pancreas, alimentary tract, and adrenals. The kidneys each weighed 250 gm. Capsules stripped with difficulty, and the cut surfaces presented a grayish-white, mottled appearance. Small discrete foci of necrosis were identified over the surface and deep within the kidney parenchyma. Microscopic examination of these areas revealed cocci. A minimal thickening of the basement membrane of the capillaries was occasionally observed. Foci of hemorrhage were also seen. An occasional crescent was found over the glomerules in the Bowman's capsule. No "wire loop" configurations were identified within the glomerular capillaries. The ureters and bladder were normal. The pelvic organs were those of a normal woman.

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[5] Haserick, J. R.: Plasma L. E. Test in Systemic Lupus Erythematosus, J. A. M. A. 146: 16-20 (May 5) 1951.

Examination of the brain revealed no signs of increased intracranial pressure. The pons, medulla, and cerebellum showed no gross lesions. On microscopic examination, however, the meninges were slightly thickened. The vessels were hyperemic, and certain vessels presented an acute vasculitis with perivascular demyelinization. Some of the vessels showed fibrinoid change within the wall. There were scattered petechial hemorrhages within the right basal ganglion. Examination of the spinal cord revealed a fusiform swelling in the lumbar area that measured 3 cm. in length and 1.5 cm. in diameter through the thickest portion (fig. 1). On microscopic examination through this area, the meningeal vessels presented thickening of walls, perivascular infiltration, and fibrinoid change within the walls (fig. 2*A*). All the vessels surrounding the area of enlarged cord contained thrombi, and one appeared to be recanalized (fig. 2*B*). The posterior funiculi showed myelomalacia. The anterior horns appeared intact, but there was a loss of ganglion cells in the posterior horns.

COMMENT

Since the cultures taken from the septic splenic infarcts, the kidneys, and from the area of discoloration of the chorda tendineae of the mitral valve all revealed Staphylococcus aureus, it was felt that the patient died from a fulminating staphylococcic septicemia. The lack of the characteristic findings of Libman-Sacks verrucae, "wire loop" glomerular capillaries, alteration of connective tissue of the cutis, and the fibrinoid degeneration of dispersed connective tissue of the body may well be attributed to the prolonged cortisone therapy.

Previous cases have been reported in which the essential lesion was vasculitis with fibrinoid change of the involved vessels and an associated myelomalacia and which occasionally would give rise to adhesive meningitis or chronic meningoencephalitis. It was considered that the brain lesions associated with vasculitis were incidental rather than the primary cause of death, except in those instances when gross infarction or hemorrhage occurred. Although the vessels within the brain proper and the meninges were involved, the most significant alterations in this case were in the blood supply to the spinal cord. Because of the multiple splenic infarcts, the possibility of infarction secondary to embolization of the vessels to the cord was considered; however, in this case there was no source for such an embolus. Ross and Wells[6] have reported, in a survey of the literature, that in approximately 28% of patients who died with disseminated lupus erythematosus, multiple splenic infarcts were found with no demonstrable source of emboli. The complete diagnosis was systemic staphylococcic septicemia with multiple focal septic abscesses; spinal cord swelling and degeneration due to vasculitis with thrombosis of the vessels supplying the meningeal vessels to the lumbar cord; cerebral hyperemia and minimal vasculitis; bilateral bronchopneumonia; pulmonary edema; arteriolonephrosclerosis; splenomegaly; and multiple septic splenic infarcts.

SUMMARY

A case is reported as an illustration of a rare complication of disseminated lupus erythematous, namely, vascular involvement of the spinal cord producing an infarct with resulting paralysis of the lower extremities.

426 Charter St.

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[6] Ross, W. S., and Wells, B. B.: Systemic Lupus Erythematosus: A Review of the Literature, Am. J. Clin. Path. 23: 139-160, 1953.

COUNCIL ON FOODS AND NUTRITION

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council.

James R. Wilson, M.D., *Secretary.*

Webster-Thomas Company, Boston.

Matchless Brand Dietetic Pack Apple Sauce.

Ingredients: Apples processed and packed in water without any added sugar or salt.

Analysis (submitted by distributor).—Total solids 11.3%, moisture 88.7%, fat (ether extract) 0.13%, protein (N × 6.25) 0.15%, crude fiber 0.57%, available carbohydrate 9.71%, sodium 1.6 mg./100 gm.

Calories.—0.41 per gram; 11.7 per ounce.

Use.—For use in low sodium and other therapeutic diets.

Matchless Brand Dietetic Pack Cut Green Beans.

Ingredients: Tendergreen variety beans packed in water without any added salt.

Analysis (submitted by distributor).—Total solids 5.2%, moisture 94.8%, fat (ether extract) 0.11%, protein (N × 6.25) 0.88%, crude fiber 0.53%, available carbohydrate 2.92%, sodium 1.02 mg./100 gm.

Calories.—0.17 per gram; 4.8 per ounce.

Use.—For use in low sodium and other therapeutic diets.

Matchless Brand Dietetic Pack Green Lima Beans.

Ingredients: Thorogreen variety baby lima beans packed in water without any added sugar or salt.

Analysis (submitted by distributor).—Total solids 19.5%, moisture 80.5%, fat (ether extract) 0.28%, protein (N × 6.25) 5.80%, crude fiber 1.58%, available carbohydrate 9.51%, sodium 10.32 mg./100 gm.

Calories.—0.64 per gram; 18 per ounce.

Use.—For use in low sodium and other therapeutic diets.

Matchless Brand Dietetic Pack Cut Wax Beans.

Ingredients: Kinghorn variety wax beans packed in water without any added salt.

Analysis (submitted by distributor).—Total solids 4.6%, moisture 95.4%, fat (ether extract) 0.09%, protein (N × 6.25) 0.82%, crude fiber 0.54%, available carbohydrate 2.37%, sodium 0.80 mg./100 gm.

Calories.—0.13 per gram; 3.7 per ounce.

Use.—For use in low sodium and other therapeutic diets.

Matchless Brand Dietetic Pack Sliced Beets.

Ingredients: Detroit dark red beets packed in water without any added salt.

Analysis (submitted by distributor).—Total solids 8.0%, moisture 92.0%, fat (ether extract) 0.05%, protein (N × 6.25) 0.90%, crude fiber 0.53%, available carbohydrate 5.53%, sodium 46.50 mg./100 gm.

Calories.—0.26 per gram; 7.3 per ounce.

Use.—For use in low sodium and other therapeutic diets.

Matchless Brand Dietetic Pack Diced Carrots.

Ingredients: Red cored chantenay carrots packed in water without any added salt.

Analysis (submitted by distributor).—Total solids 6.56%, moisture 93.44%, fat (ether extract) 0.06%, protein (N × 6.25) 0.78%, crude fiber 0.60%, available carbohydrate 4.04%, sodium 50.1 mg./100 gm.

Calories.—0.20 per gram; 5.7 per ounce.

Use.—For use in low sodium and other therapeutic diets.

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X-RAYS DURING PREGNANCY

Contemporary radiobiological research has stimulated interest in and controversy over the magnitude of the radiation hazard associated with roentgen pelvimetry and other diagnostic procedures that expose the fetus to x-rays. Many aspects of the problem were discussed at a recent conference on the effects of radiation and other deleterious agents on embryonic development, sponsored by the biology division of the Oak Ridge National Laboratory, the proceedings of which will be published soon by Oak Ridge. Very little is known about the nature of whole-body radiation injury in the case of the fetus. It is probable that fetal blood-forming organs and other tissues are just as radiosensitive as adult structures and that comparable physiological disturbances occur. The present discussion is concerned only with genetic effects, particularly as they are manifested in the later development of the individual. Exposure of the fetus to sublethal doses of ionizing radiation may have two important genetic sequelae. These are gene mutations and chromosome aberrations that lead to somatic mutations and result in abnormal development of one or more of the organ systems.

The problem of the production of gene mutations is extremely complex, since they are changes in the heredity of the organism that become apparent only in the next or subsequent generations. Competent authorities differ widely in their estimates of the dose of radiation required to double the natural mutation rate per generation in man. Most of the estimates are based on studies of the fruit fly, Drosophila, and of mice extrapolated in terms of what is known about human genetics. Robley Evans' calculations suggest that doses of the order of 250 to 300 r are necessary to produce this effect. Other workers, such as Sewall Wright, H. J. Muller, D. R. Charles, and L. B. and W. L. Russell, using somewhat different assumptions, have presented estimates that are lower than Evans' by as much as a factor of 100. Nearly all the students of the subject share the belief that there is no threshold dose for gene mutation that may follow any radiation exposure however small. It should be emphasized, however, that the generally accepted level of significance for this genetic effect is a doubling of the normal or spontaneous rate of gene mutation.

Of greater practical importance is the occurrence of somatic mutations that lead to developmental defects. Since these changes are the results of chromosome injury, and since it is known that healing, or restitution, of chromosomes occurs, there should be a threshold dose for this phenomenon. This dose is not known with certainty for any species, but, in the case of one mammal, the mouse, it may be as low as 25 r. This problem has two aspects that are of clinical interest: first, the dose of radiation required and, second, the time during gestation at which it is delivered. The clinical literature contains many reports of the occurrence, and absence, of congenital malformations in children who were irradiated in utero. These reports have seemed to be contradictory and difficult of interpretation until the recent extensive animal experiments of J. G. Wilson, S. P. Hicks, and the Russells were reported. All the contemporary animal studies are consistent, and the results may be summarized conveniently by quoting from a paper of the Russells: "The developing embryo of a great variety of animal forms, including several mammals, is highly susceptible to the induction of malformations by radiation. There is no reason to doubt that this also applies to the human embryo . . . doses high enough to produce developmental abnormalities do not necessarily cause abortion or prenatal death. . . . Animal experiments have clearly demonstrated that there are well defined critical periods in the development of most characters. That is, a particular abnormality may be produced with a high incidence by irradiation at a particular stage or stages, but not at all from irradiation at other stages." [1]

The most important human material that can be compared with animal studies are less than 100 Japanese children who were exposed in utero to the detonation of the atomic bomb. Examination of these children has not revealed an abnormal incidence of skeletal abnormalities; however, the Atomic Bomb Casualty Commission has reported that, of 11 Hiroshima children who were exposed in utero to amounts of gamma radiation that approximated the median lethal dose, 7 were found to have microcephaly with mental retardation, 2 were mongolian idiots, and 2 were apparently normal. The total number of stillbirths and the number of abortions that occurred is not known with certainty, although it is reported that most pregnant women miscarried soon after the incident.

The problem of the critical time is of great interest clinically, since, to quote the Russells again: "Critical periods for the majority of gross abnormalities in mice (and also in rats) occur at a time which, in man, corresponds to the second to the sixth week of gestation. . . . Irradiation at more advanced stages in the mouse (corresponding to periods following the sixth week in man) produces less obvious and possibly more delayed effects which from the human point of view may be as harmful as the gross monstrosity." From their own studies the Russells concluded: "Whenever possible irradiation involving the uterus of women of child-bearing age should be restricted to the two weeks following the last menstrual period to preclude the possibility of fertilization having taken place. This applies particularly to diagnostic irradiation even if the doses involved are less than 25 r."

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[1] Russell, L. B., and Russell, W. L.: Radiation Hazards to Embryo and Fetus, Radiology 58: 369 (March) 1952.

There does not appear to be any rational basis for disputing the conclusion that radiation is harmful to the fetus. The difficult problem is the statement of the amount of radiation meant when speaking of harm. From the standpoint of the geneticist who is concerned with gene mutations, any amount in excess of the natural background radiation is capable of inflicting genetic injury. The geneticist, therefore, is entirely consistent when he recommends that the fetus be protected from all radiation. Such a complete interdiction is not practical clinically, and occasions arise when it is necessary to perform roentgenologic examinations of the pelvic region because of injury, suspected dystocia, and the like. Under such circumstances an acknowledged risk is, and should be, accepted. The hazard can be minimized by the use of efficient radiographic equipment and by restricting the examination to the greatest extent compatible with obtaining the desired information. The animal experimentation provides a scientific basis for recommending that those examinations that can be deferred should be performed as late as possible in the course of pregnancy. Since the radiation exposure during fluoroscopy is usually many times greater than during radiography, fluoroscopic examinations of the pelvic region (such as of the colon or small intestine) should not be done at all during pregnancy. Since many office fluorosopes are poorly protected and seldom calibrated and are operated frequently at very high outputs it would be wise for physicians who are not qualified radiologists to defer all fluoroscopic examinations until after delivery. When the characteristics of the machine are well known and when the operator is certain that there are no x-ray leaks, cautious and brief studies of the chest and upper gastrointestinal tract should not be dangerous. The fact remains, however, that it is not possible to specify a dose of x-rays that is "safe" in the sense that it is known to be incapable of causing fetal injury.

The Russells have made an interesting suggestion to reduce the possibility of accidental radiation injury to the very young fetus. The most susceptible period in human embryogenesis appears to be between the second and sixth week of gestation, when few women are aware of the existence of pregnancy. Extensive fluoroscopic or radiographic examinations at this critical time could certainly inflict serious, unintentional injury. It is in x-ray pelvimetry and fetometry that the question of possible radiation damage has been most stressed, but, actually, from the standpoint of the number of patients involved and the doses delivered, examinations such as pyelograms, gastrointestinal examinations, and particularly the examination of the lumbosacral spine are the ones that are more apt to be dangerous. There is a sound experimental basis for the recommendation that all x-ray examinations or treatments involving the uterus should be restricted to the two weeks immediately following the end of a menstrual period. There is a good possibility that conscientious radiologists will adopt this procedure, since it involves no more than a scheduling of certain examinations. Some physicians may object to it as being excessively cautious and may even feel that their patients will become unnecessarily apprehensive about all x-ray exposures. The scientific evidence, however, demonstrates clearly that there is a basis for apprehension and that caution is justified.

MUSIC AS A THERAPEUTIC MODALITY

The use of music as a therapeutic modality is the subject of a recent communication by Arrington,[1] who declares that in acutely ill patients music often produces effects of sedation and reassurance, while in chronically ill patients music is able to divert the mind during long periods of convalescence and enforced rest. Patients with tuberculosis, rheumatic fever, malignant tumors, neurological diseases, orthopedic disorders, and many other chronic ailments frequently discover that music helps while away tedious hours and removes flights of the imagination to more pleasant and relaxing spheres of thought. This can be accomplished with the aid of background music, records, books, musical instruments, and singing.

Arrington believes that music is a useful adjunct to physical therapy. Since the active participation of patients whose limbs require remedial exercise is often invaluable, the piano, for example, provides a contraction-relaxation pattern for strengthening the upper extremities that is hardly equaled by any other musical instrument. Many patients with arm casts are able to play an instrument when the casts are properly supported. It has been observed that digital motion in patients with contractures due to burns is frequently much improved by the playing of the piano.

Since almost all children enjoy music that is tuneful, accompanied by simple words, and that relates a story, music is especially applicable as a therapeutic modality for the juvenile audience. It is useful as a vehicle accompanying games, and it also provides a pleasant distraction from the disturbing cries that invade pediatric wards of hospitals. It is of particular value to chronically ill children who are required to stay in bed for long periods of time.

According to Pichot,[2] mentally defective persons are more easily handled when soothing, rhythmic music is performed. It has been found in dentistry that music allays anxiety, raises the pain threshold, and improves the doctor-patient relationship. Many dentists play background musical recordings in their offices during annoying dental procedures; some obstetricians use music to allay anxiety and raise the pain threshold during arduous hours spent by patients in the labor room. Light [3] observed that music in the operating room served as a beneficial adjunct to the administration of local, regional, or spinal anesthesia and that it diminished apprehension in patients. A survey of a group of patients undergoing various major surgical operations indicated a very favorable response to the calming effects of music.

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1. Arrington, G. E., Jr.: Music in Medicine, West Virginia M. J. 49: 152 (June) 1953.
2. Pichot, F.: Effect of Music on Mental Defectives, Ment. Health 9: 6 (Aug.) 1949.
3. Light, G. A.: Use of Magnetic Recorder, Anesth. & Analg. 28: 330 (Nov.-Dec.) 1949.

MEDICAL NEWS

ARKANSAS

Dr. Wells Enters Publishing Field.—Dr. Benjamin B. Wells has resigned as head of the department of medicine, University of Arkansas School of Medicine, Little Rock, to become vice-president and senior editor of W. B. Saunders Company, Philadelphia. Dr. Wells, who became associated with the school of medicine in 1942, has served as assistant professor of pathology, medical director of the University Hospital, professor of medicine, and dean of the medical school. He has been professor of experimental medicine and head of the department of medicine at the M. D. Anderson Foundation of the University of Texas Medical Center in Houston and has taught at the Baylor University College of Medicine, Houston. He received the Legion of Merit for services in the European theater during World War II. Dr. Wells is the author of "Clinical Pathology: Application and Interpretation" and "Treatment of Rheumatoid Arthritis: Current Therapy" and is coauthor with Drs. Arthur H. Sanford and J. C. Todd of "Clinical Diagnosis by Laboratory Methods."

CALIFORNIA

Orthopedic Clinic.—St. Francis Memorial Hospital, San Francisco, has opened an orthopedic clinic. Rotating their contributed time, Drs. John F. Cowan, William E. Jensen, Paul W. Klabunde, Alfred M. Palmer, and Richard J. Wagner will be on duty in the clinic, along with the resident physician, every Tuesday or Thursday, 1-2 p. m., in the physical therapy department. Resident physicians will be on orthopedic assignments for three months. The consulting staff of orthopedists consists of Drs. Delbert W. Hand, Leon O. Parker, and Horace C. Pitkin. Appointments for consultation with the resident and clinic staff physicians may be made by calling the physical therapy department (extension 384).

Personal.—Dr. James T. Weston, pathologist of the coroner's office, San Diego, has been given leave of absence for one year. Under a Damon Runyon fellowship awarded by the American Cancer Society, he will study newer methods in cancer detection at the Memorial Center for Cancer and Allied Diseases, New York.——Dr. Alvin G. Foord, director of laboratories at the Collis P. and Howard Huntington Memorial Hospital, Pasadena, for the past 22 years, has resigned but will serve as consulting pathologist.

COLORADO

State Medical Meeting in Denver.—The Colorado State Medical Society will hold its annual meeting at the Shirley-Savoy Hotel, Denver, Sept. 29-Oct. 2 under the presidency of Dr. William A. Liggett, Denver. Presentations by guest speakers include:

Alson E. Braley, Iowa City, The Ophthalmologist an Aid to Diagnosis of General Disease.
Chester B. McVay, Yankton, S. D., Inguinal and Femoral Herniplasty.
Rupert B. Turnbull Jr., Cleveland, Surgical Treatment of Ulcerative Colitis.
Frank C. Combes, New York, Cutaneous Manifestations of Systemic Disease, Part 1.
Howard F. Root, Boston, Treatment of Diabetic Coma and Its Complications.
Mr. Leo E. Brown, Chicago, Medicine's New "Platoon System."
Claude J. Hunt, Kansas City, Mo., Modern Approach to the Treatment of Thyroid Diseases.
Thomas J. Dry, Rochester, Minn., The Gallbladder and Its Relation to Coronary Disease.

Thursday at 9 a. m. a symposium on "Problems Encountered in Congenital Anomalies" will be presented by Drs. Sidney E. Blandford Jr., Robert K. Brown, and James A. Philpott Jr., Denver. Friday, 10:45 a. m., a symposium on "Surgery of Heart Diseases" will be presented by Drs. John B. Grow, Abe Ravin, and R. Parker Allen, Denver. At the annual banquet Friday, 7 p. m., an address on "Freedom of the Press and the Professions" will be delivered by Mr. Palmer Hoyt, editor and publisher of the *Denver Post.*

CONNECTICUT

Discussion on the Tuberculous Patient.—A panel discussion on "Advances in Treatment and Rehabilitation of the Tuberculous Patient Employed in Industry" will be held at Gaylord Farm Sanatorium, Wallingford, Sept. 23, at 3 p. m. A barbecue dinner will be provided at cost by the sanatorium. Interested Connecticut physicians are invited to attend this meeting, which will be sponsored jointly by the Committee on Industrial Health, Connecticut State Medical Society, and the Gaylord Farm Sanatorium.

Dr. Gray Retires from Health Department.—Dr. Albert S. Gray, Hartford, deputy commissioner of the Connecticut State Department of Health, has retired after 25 years of state service. In 1948, Dr. Gray received a citation from the Connecticut Safety Society for his work in the prevention of occupational illness in the state. He was the first chairman of the industrial hygiene section of the American Public Health Association and is a past president of the American Conference of Governmental Industrial Hygienists.

GEORGIA

County Health Board Establishes Advisory Council.—The Richmond County board of health recently appointed a special medical advisory committee consisting of the following Augusta physicians: Virgil P. Sydenstricker, Harry B. O'Rear, Walter L. Shepeard, and William S. Boyd.

Dr. Elkin to Retire from Faculty.—Dr. Daniel C. Elkin, chairman, department of surgery, Emory University School of Medicine, will retire from the faculty at the end of the 1953-1954 academic year but will maintain an advisery and consulting relationship with the school where since 1939 he has occupied the Joseph B. Whitehead chair of surgery. Dr. Elkin, a nephew of the late Dr. W. S. Elkin, dean of the Atlanta Medical College at the time it became the medical school of Emory University and first dean of the new school, served as surgeon-in-chief of the Grady Memorial Hospital in Atlanta from 1939 to 1948. He is now consultant in surgery to the Surgeon General, chief civilian consultant in surgery for the Third Army, and consultant to the Walter Reed Army Medical Center, Washington, D. C. Dr. Elkin has served as president of the American Surgical Association, the Society for Clinical Surgery, and the Southern Surgical Association, and special consultant to the U. S. Public Health Service (National Institutes of Health).

IDAHO

Society News.—The Southwest Idaho District Medical Society has elected Dr. Lowell B. Privett, Boise, president; Dr. Lester L. Shupe, Caldwell, vice-president; Dr. Max F. Bell, Boise, secretary; and Dr. A. Curtis Jones, Boise, treasurer.——At the annual meeting of the Idaho Chapter of the American College of Surgeons in Boise Dr. Arthur V. Jones Sr., Boise, was elected president, Dr. Albert B. Pappenhagen, Orofino, vice-president, Dr. James H. Hawley, Boise, secretary, and Dr. Charles B. Beymer, Twin Falls, counselor.

ILLINOIS

Conference on Exceptional Children.—The Illinois Commission for Handicapped Children will sponsor the 10th Governor's Conference on Exceptional Children Sept. 25 at the Palmer House, Chicago. Group meetings will be arranged for the handicapped child in preschool, in the regular school

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

program, in the community recreation program, and in institutions. During a symposium on "Generic Casework and the Handicapped Child," Dr. M. Jeanne Spurlock, psychiatrist, Institute for Juvenile Research, Chicago, will discuss "Attitudes of Caseworkers That Help or Hinder." Featured speaker for the conference luncheon will be the Rev. Harold Wilke, pastor of St. Paul's Evangelical and Reformed Church, Crystal Lake, Ill., former chaplain in military hospitals, and for several years a faculty member of the Menninger Foundation school of psychiatry in Topeka, Kan. "A Reporter's Round-Up of the Conference" will be presented by Mr. Eugene J. Taylor, staff writer, *New York Times*, and co-author with Dr. Howard A. Rusk, New York, of "New Hope for the Handicapped."

Chicago

Society News.—The north side branch of the Chicago Medical Society will meet at 8 p. m., Oct. 1, in the ballroom of the Drake Hotel, Lake Shore Drive and Upper Michigan Ave. Dr. Hiram T. Langston, Riverside, Ill., will speak on "Carcinoma of the Lung."

Personal.—Dr. Ben W. Lichtenstein presented a paper on "Sturge-Weber-Dimitri Syndrome Cephalic Form of Neurocutaneous Hemangiomatosis" at the International Neurological Congress in Lisbon, Portugal. Dr. Percival Bailey, who also attended that congress and the German Neurological Congress at Munich, has been invited to address a meeting at Seville, Spain, on "Psychomotor Epilepsy," and Dr. Paul C. Bucy will present "Experimental Studies on the Temporal Lobe." All are professors at the University of Illinois College of Medicine.

IOWA

Dr. Heeren Named Deputy Health Commissioner.—Dr. Ralph H. Heeren, Des Moines, has been named Iowa state deputy commissioner of health. He formerly served as associate professor of preventive medicine, State University of Iowa College of Medicine, Iowa City. Affiliated with the Iowa state department of health since 1948, he was previously director of the division of communicable diseases, state health department of Oklahoma. He has served on the faculties of Western Reserve University School of Medicine, Cleveland, and Tulane University of Louisiana School of Medicine, New Orleans; has been affiliated with Mt. Sinai Hospital, Cleveland, and Albany (N. Y.) Hospital; and was a Rockefeller Foundation fellow in the school of public health at Harvard Medical School, Boston.

Personal.—Dr. Paul D. Anneberg, Carroll, has been made president of the Rotary Club.——Dr. J. Frank Aldrich, Clarinda, who recently retired from active medical practice after 55 years, was honored during an open house program at Hand Memorial Hospital in Shenandoah. During the ceremonies Dr. Aldrich presented the hospital board with a check for $1,000 in memory of his wife.——In recognition of his 50 years of practice Dr. Henry D. Jones was guest of honor at a meeting of the Schleswig business men's club, which presented him with a testimonial scroll. The scroll listed his many services to the community, including "hardships of his early practice, during the horse and buggy days, and before the era of good roads; willingness during his professional career to answer every call, without thought of personal comfort or financial remuneration; and genuine interest in community welfare."——Dr. Edmund G. Zimmerer, Des Moines, former director of the Division of Cancer Control, Iowa State Health Department, and member of the National Cancer Institute Cancer Control Committee, has been appointed Iowa State commissioner of health for a four year term.——Dr. Louis H. Kornder, Davenport, is retiring after 35 years of practice and will devote himself to civic interests. Dr. Kornder is president of the board of the Davenport museum, vice-president of the Municipal Art Gallery, curator of the Iowa State Historical Society, and a trustee of Dubuque University.——Dr. Eugene Tinsman, who has practiced in Orient for 50 years, was recently honored by an open house in the school building. Dr. Tinsman has served 12 years on the Orient school board.

KANSAS

Cancer Diagnostic Clinic at Chanute.—Neosho Memorial Hospital, Chanute, recently organized a cancer diagnostic clinic, after having established a cancer registry and follow-up service a year ago. Cancer control activities in Kansas are jointly sponsored by the Kansas Medical Society's committee on cancer control, the Kansas Division of the American Cancer Society, and the cancer section of the Kansas State Board of Health.

KENTUCKY

State Medical Meeting in Louisville.—The annual meeting of the Kentucky State Medical Association will convene at the Columbia Auditorium, Louisville, Sept. 22-24. The general session, which is designated as the Lewis Rogers Memorial meeting, will be called to order by the president, Dr. Guthrie Y. Graves, Bowling Green, at 9 a. m. Tuesday. At the president's luncheon, Roof Garden, Brown Hotel, at noon, Dr. Edward J. McCormick, Toledo, Ohio, President of the American Medical Association, will speak on "Firm Ground for Medicine." Other guest speakers include:

George T. Harrell, Winston-Salem, N. C., How Antibiotics Work.
Robert M. Zollinger, Columbus, Ohio, Indications for Surgery in the Jaundiced Patient.
Orville B. Coomer, D.D.S., Louisville, Growing Interdependence of Medicine and Dentistry.
Harold E. Harris, Cleveland, Indications and Contraindications of Tonsillectomy.
Paul H. Holinger, Chicago, Bronchial Obstruction: Its Significance in Pulmonary Disease.
Mr. Leo E. Brown, Chicago, PR Profits.
Col. William H. Amspacher, Fort Sam Houston, Texas, Early Care of the Severe Burn.
Donald A. Covalt, New York, Rehabilitation of the Hemiplegic Patient.
Mr. C. Joseph Stetler, Chicago, The Legislative Program and Activities of the A. M. A.
H. Close Hesseltine, Chicago, Changing Patterns in Obstetric Practice.

The presidential address will be delivered Wednesday, 10 a. m., and the oration in medicine, "Heart Disease From the Patient's Viewpoint," will be given at 11:30 a. m. by Dr. Paul W. Simpson, Covington. The annual banquet will be held Thursday 7:30 p. m. in the Crystal Ballroom of the Brown Hotel (dress optional). Mr. Allan Kline, president, American Farm Bureau, will speak on "Promises and Prospects." The woman's auxiliary will meet concurrently at the Brown Hotel where, on Wednesday, Dr. Graves and Dr. J. Duffy Hancock, Louisville, president-elect of the Kentucky State Medical Association, will participate in the panel on public relations.

MICHIGAN

Meeting of Medical Assistants.—The fourth annual convention of the Michigan State Medical Assistants Society will be held at the Pantlind Hotel, Grand Rapids, Sept. 23-24. On Wednesday Dr. Luther C. Carpenter Jr., Grand Rapids, will speak on "Cancer," and Dr. David G. Dickinson, Ann Arbor, will discuss "Poliomyelitis." Luncheon at 12:30 p. m. will follow a presentation on "Legal Aspects in Medicine" by William A. Perkins, LL.B., Grand Rapids. At the banquet, 7:30 p. m., A. E. Schneider, Ph.D., Kalamazoo, will have as his topic "Your Attitude and You." Thursday morning Dr. Edwin O. Pearson, Kalamazoo, will discuss "X-Ray and X-Ray Therapy," and Dr. Anthony F. Stiller, Oshtemo, will talk on "Tuberculosis." The president's luncheon, 12:30 p. m., will be followed by a presentation on "History of Medicine" by Harvey M. Merker, D.Sc., consultant to Parke, Davis & Company, Detroit.

State Medical Meeting in Grand Rapids.—The Michigan State Medical Society will hold its annual session at the Pantlind Hotel, Grand Rapids, Sept. 23-25 under the presidency of Dr. Reader J. Hubbell, Kalamazoo. Discussion conferences will be conducted each day from 12 to 1 p. m. There will be a public meeting Wednesday, 8:30 p. m., in the Civic Auditorium, where many of the scientific sessions will convene. After the presidential address and induction of members into the 50 year club, Dr. Edward J. McCormick, Toledo, Ohio, President of the American Medical Association, will speak on

"Organized Medicine—Its Progress and Problems." At 9:15 p. m. the Andrew P. Biddle lecture on "World Affairs and Foreign Policy" will be delivered by U. S. Senator Homer Ferguson, Detroit. On Thursday, which has been designated as general practice day, the following program will be presented by out-of-state speakers:

Chevalier L. Jackson, Philadelphia, What Can Bronchoscopy Do for the General Practitioner?
Michael L. Mason, Chicago, The Crushed Hand.
George E. Shambaugh Jr., Chicago, Management of Hearing Impairments.
Blair Holcomb, Portland, Ore., Patients Are People—A Physician's Soliloquy.
Allan C. Barnes, Cleveland, Management of the Infertile Couple.
Arthur T. Hertig, Boston, Genesis of Uterine Cancer, Cervical and Endometrial.
Victor A. Najjar, Baltimore, Jaundice in Infancy and Childhood.
Louis A. M. Krause, Baltimore, Physical Examination.

The following presentations will be made by other out-of-state speakers during the sessions:

Walter G. Maddock, Chicago, Development and Management of Gastrointestinal Distention.
William D. Holden, Cleveland, Place of Radioactive Isotopes in Clinical Practice.
Everett I. Evans, Richmond, Va., Treatment of the Severely Burned.
Frank Hinman Jr., San Francisco, Clinical Use of Testosterone.
Leo M. Taran, Roslyn, L. I., N. Y., Management of Rheumatic Fever and Rheumatic Heart Disease.
William L. Benedict, Rochester, Minn., Multiple Sclerosis.
David P. Findley, Omaha, The Postcesarean Baby.
O. Spurgeon English, Philadelphia, Treatment of Psychosomatic Illness.
Jacob A. Bargen, Rochester, Minn., Problems of Nutrition in Ulcerative Disease of the Digestive Tract (Beaumont lecture).
John G. Downing, Boston, Oral and Cutaneous Clues in Medicine and Surgery.
Leo G. Rigler, Minneapolis, Hepatography—The Roentgen Examination of the Liver.
John W. Knutson, D.D.S., Washington, D. C., An Evaluation of the Grand Rapids Water Fluoridation Supply.
Paul R. Cannon, Chicago, Successes and Failures in Relation to the Problem of Parenteral Alimentation.
Harold J. Magnuson, Chapel Hill, N. C., Interpretation of Positive Serologic Tests for Syphilis in Clinically Negative Patients.
Norman M. Keith, Rochester, Minn., Factors in Treatment of Edema.
Leslie N. Gay, Baltimore, The Dramatic Story of Dramamine.
Julian Johnson, Philadelphia, Present Status of the Surgery of Mitral and Aortic Stenosis.

MINNESOTA

Dr. Melby Night.—Dr. Benedik Melby, Blooming Prairie, was honored by the community on "Dr. Melby Night," when he was presented with a gold clock and pen desk set and a framed, hand-lettered scroll commemorating his 50th anniversary in the practice of medicine. Dr. Melby has been a member of the board of education for 39 years. In February, 1951, he was awarded a scroll by the Minnesota Educational Association for his interest and work in the public schools.

NEW YORK

Lecture on Psychosomatic Gynecology.—Dr. William S. Kroger, Chicago, will speak on "Psychosomatic Gynecology," Sept. 24, 8:30 p. m. in the Jewish Sanitarium and Hospital for Chronic Diseases, 86 E. 49th St., Brooklyn. The lecture is presented by the gynecologic service.

Personal.—After 14 years of service at the Ray Brook State Tuberculosis Hospital in Ray Brook, Dr. Joseph Gordon, principal thoracic surgeon, has resigned and has entered the private practice of thoracic surgery at 106 S. Girard St., Albuquerque, N. Mex.

NORTH CAROLINA

University News.—Dr. David Cayer, who has been associate professor of internal medicine, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, since July 1, 1949, has been promoted to professor of gastroenterology.

Personal.—Dr. W. Nelson Thompson, Raleigh, has been appointed medical director of the Durham Life Insurance Company.——Dr. Coy C. Carpenter, dean of the Bowman Gray School of Medicine, Winston-Salem, has been awarded a Fulbright visiting professorship in pathology for a nine month lecture series in Cairo, Egypt.——Joseph E. Markee, Ph.D., professor of anatomy, Duke University School of Medicine, Durham, has been chosen as the fourth honorary member named by the American Orthopedic Association since its founding in 1887. The society honored Dr. Markee for his work in audiovisual education, particularly development of teaching aids in orthopedic surgery. Dr. Markee was made an honorary member of the American Academy of Orthopedic Surgery in 1950.——Dr. Wingate M. Johnson, Winston-Salem, served as moderator for a panel on "Aging" at the annual meeting of the North Carolina Public Health Association in Nags Head, Sept. 10-12.

PENNSYLVANIA

Anesthesiologists Meet in Pittsburgh.—The annual meeting of the Pennsylvania Society of Anesthesiologists will be held in Pittsburgh Sept. 25-26. Out-of-state speakers include:

C. Paul Boyan, New York, Ganglionic Blockade During Anesthesia.
Emery A. Rovenstine, New York, Cyclopropane.
Anthony J. Bayuk, Youngstown, Ohio, Use of Orthoxine in Anesthesia.
Maurice S. Segal, Boston, Advances in Inhalation Therapy.

Personal.—For his entry "Physicians and Medicine on Stamps," Dr. Herbert B. Shearer, Worcester, received the grand award at the International Stamp Exhibition held at the National Philatelic Museum, Philadelphia, under the auspices of the American Topical Association. Dr. Shearer's collection of "U. S. Christmas Seals and Red Cross Stamps of the World" won first prize in the section of "International Organizations." ——Dr. Herman W. Rannels, chief of obstetrics and gynecology, St. Joseph's Hospital, Lancaster, has become one of the directors of the Hunterdon Medical Center in Flemington, N. J. The directorship includes a teaching position on the staff of New York University-Bellevue Medical Center, with which the center is affiliated.

Philadelphia

Phi Delta Epsilon Lecture.—Beta Zeta chapter, Phi Delta Epsilon fraternity, Hahnemann Medical College and Hospital of Philadelphia, has announced its annual lectureship to the medical profession, Oct. 2, 8 p. m. at Klahr Auditorium, 235 N. 15th St. Dr. Nicholson J. Eastman, Baltimore, will speak on "25 Years of Obstetric Pain Relief: What Have We Learned?"

Mental Health Director Wanted.—The Philadelphia Department of Public Health has an opening for a director of its new division of mental health. Applicants are required to have seven years of clinical psychiatric experience, including three years in charge of other psychiatrists, one year in children's psychiatry, and three years in approved training centers, that have led to certification by the American Board of Psychiatry and Neurology. The starting salary is $13,442. Closing date for applications is midnight, Oct. 21.

TEXAS

General Practitioners Meet in Dallas.—The annual scientific assembly of the Texas Academy of General Practice will be held at the State Fair Auditorium in Dallas, Sept. 21-23. Out-of-state guest speakers include:

Francis L. Chamberlain, San Francisco, Specific Treatment of Hypertension. Recent Advances in Electrocardiography of Importance in General Practice.
Henry H. Turner, Oklahoma City, Endocrine Disorders of Childhood. Psychosomatics and Pseudoendocrinopathies.
Edgar Hull, New Orleans, Hints in Recognition of Certain Endocrine Diseases. Asymptomatic Organic Disease.
Henry W. Brosin, Pittsburgh, Interviewing Techniques. Depressive Reactions in General Practice.
Somers H. Sturgis, Boston, Problems of Sterility. Diagnosis and Treatment of Amenorrhea.
Benjamin J. Wolpaw, Cleveland, Retinal Changes in Hypertensive Vascular Disease. External Diseases of the Eye as Seen by the General Practitioner.
Marcus J. Stewart, Memphis, Diagnosis and Treatment of Minor Foot Problems. Differential Diagnosis of Low Back Pain.
Alton Ochsner, New Orleans, Diagnosis of Cancer of the Lung. Diagnosis and Treatment of the Post-Phlebitic Extremity.
Philip Thorek, Chicago, Appendicitis. Diagnosis and Treatment of Breast Lesions.
Henry M. Weyrauch Jr., San Francisco, Pitfalls in Urologic Diagnosis. Office Treatment of Common Urologic Conditions.

The fee is $20. Nonmembers are invited to attend. Entertainment for the physicians' wives has been arranged.

Industrial Health Conference in Houston.—The Houston Chamber of Commerce will sponsor the sixth annual Gulf Coast Conference on Industrial Health at the Shamrock Hotel, Houston, Oct. 1-3. During the symposium on "Employment of the Cardiac" Thursday afternoon, Dr. Harold M. Marvin, New Haven, Conn., will discuss "The Physician's Dilemma," and Dr. Kenneth E. Markuson, Helena, Mont., will speak on "The Insurance Carrier Views the Problem." Vice Admiral Ross T. McIntire (MC), U. S. N., Ret., Washington, D. C., will speak. Dr. Robert L. King, Seattle, will serve as moderator for a panel discussion at 4:30 p. m. during which previous speakers will participate in a question and answer period. Other physicians participating in the Thursday program include Dr. Theodore M. Frank, Texas City, who will serve as co-chairman of the morning session; Dr. Paul V. Ledbetter, Houston, co-chairman of the luncheon session; Drs. Sidney Schnur and Valliant C. Baird, Houston, chairman and co-chairman, respectively, of the afternoon session. The morning session will be presented by Dr. George M. Saunders, New York ("The Executives' Health Problem"), Dr. Charles H. Hine, Berkeley, Calif. ("Methods of Establishing Safe Handling Procedures for Compounds Developed by the Petro-Chemical Industry"), and Dr. Robert E. Eckardt, Linden, N. J. ("A Medical Research Program in Industry"). Speakers for the luncheon sessions are Dr. Robert L. King, Seattle, who will report on the American Heart Association, of which he is president, and Dr. Marvin, New Haven, Conn., who will discuss "The Executive and His Heart." At the evening session in the Prudential Building Auditorium, Vice Admiral McIntire will present "Recovery of Human Resources Through Rehabilitation." Friday morning will be devoted to a symposium on "The Noise Problem in Industry":

C. Richard Walmer, Pittsburgh, Noise in Industry—The General Problem.
James H. Sterner, Rochester, N. Y., Industrial Noise—Its Medical Aspect.
Rear Admiral Herbert Lamont Pugh, Washington, D. C., Noise, Noxious or Nice.
Jack L. Bangs, Ph.D., Houston, Testing for Hearing Loss and Its Application to Industry.

Friday afternoon Dr. Arthur J. Vorwald, Saranac Lake, N. Y., will present "Medical Aspects of Air Pollution" in a symposium on "Waste Disposal Problems," which will be preceded by a film showing on "The City That Disappears."

GENERAL

United Cerebral Palsy Appoints Chairman.—Dr. H. Houston Merritt, director of the Neurological Institute of the Columbia-Presbyterian Medical Center, New York, has been appointed chairman of the board, which coordinates the work of the organization's five volunteer medical and professional boards and sets over-all policy. Dr. Merritt succeeds Dr. Sidney Farber, professor of pathology at Harvard Medical School, Boston, who will continue to serve as chairman of the Research Advisory Board. Taking over as chairman of the Clinical Advisory Board, a position formerly held by Dr. Merritt, is Dr. Charles F. McKhann, professor of pediatrics at Jefferson Medical College, Philadelphia.

Cancer Society Fellowships.—The American Cancer Society has announced that its program of clinical fellowships will continue through the next institutional training year to June 30, 1955. The program for the coming year will include support for clinical traineeships. These traineeships, which are opportunities for training for physicians at a level somewhat lower than the clinical fellowship, carry stipends up to a maximum of $3,600. Fellowships and traineeships will be made available primarily to teaching institutions approved by the Council on Medical Education and Hospitals of the American Medical Association. Applications should be addressed to Dr. Brewster S. Miller, American Cancer Society, 47 Beaver St., New York 4. The deadline for filing applications is Oct. 5. Application forms are not necessary.

Medical Illustrators Meet in Baltimore.—The annual convention of the Association of Medical Illustrators will be held at the Johns Hopkins Medical Institutions, Baltimore, Oct. 5-7. Participating in the program will be Drs. Alan C. Woods, Baltimore ("The Value of Art in Ophthalmology as Opposed to Photography"), Victor A. McKusick, Baltimore ("The Hutchinson Collection"), and David S. Ruhe, Chicago ("Role of the Illustrator in a Changing Medical Audiovisual Program in the Medical Center"). Dr. Jonas S. Friedenwald, Baltimore, associate professor of ophthalmology at Johns Hopkins Medical School since 1931, will deliver the Brödel Memorial lecture on "Advances in Visual Physiology and the Portrayal of Depth of Space in Painting" after the dinner meeting on Tuesday. Monday at 8 p. m. there will be a tour of the new photographic department, Johns Hopkins Hospital Reconstruction Unit #1. At 8:45 p. m. movies will be shown on "Embryology of the Eye," "Amebic Dysentery," and "Carcinoma of the Prostate."

Meeting of Neurosurgical Society.—The Neurosurgical Society of America will hold its annual meeting at the Broadmoor Hotel in Colorado Springs, Colo., Sept. 23-26 under the presidency of Dr. William F. Meacham, Nashville, Tenn. Thursday morning will be devoted to a "Forum on Clinical Problems as Related to Diagnosis," for which the moderators will be Drs. Francis J. Otenasek, Baltimore, Theodore B. Rasmussen, Chicago, and Christian Keedy, Miami, Fla. Dr. Kenneth E. Livingston, Portland, Ore., will serve as chairman for the Thursday afternoon symposium on "Present Status of Psychosurgery Including the Legal Aspects." Participants will be Drs. C. Douglas Hawkes, Memphis, Tenn., Alfred Uihlein, Rochester, Minn., Arthur A. Morris, Washington, D. C., and John R. Green, Phoenix, Ariz. There will be a panel Friday morning on "Metabolic and Electrolytic Problems in Neurosurgery," in which Drs. Eben Alexander Jr., Winston-Salem, N. C., Irving Cooper, New York, Jean M. Hawkes, Memphis, Tenn., and Robert M. Salassa, Rochester, Minn., will participate. The golf tournament will be on Friday afternoon. The banquet (formal), 7:30 p. m., will be preceded by a cocktail hour. Speaking by invitation Saturday morning will be Drs. Arthur A. Morris and Clemmer M. Peck, Washington, D. C. ("Anatomy of Anterior Cerebral Artery as Demonstrated by Arteriography") and Drs. Lester A. Mount and Juan M. Taveras, New York ("Study of Collateral Circulation of the Brain Following Various Ligations Intracranially and in the Neck"). At 6 p. m. Saturday there will be a steak fry in the canyon.

Pediatricians Meet in Miami.—The American Academy of Pediatrics will hold its annual meeting in the Municipal Auditorium, Miami, Fla., Oct. 6-9 under the presidency of Dr. Philip S. Barba, Philadelphia. Two day instruction courses (enrollment limited to from 35 to 50 in each seminar) will be presented Oct. 4-5. Fee for each seminar is $30. The following presentations will be made:

Lawson Wilkins, Baltimore, Pediatric Endocrinology.
Helen B. Taussig, Baltimore, Heart Disease in Children.
Randolph K. Byers, Boston, Pediatric Neurology.
Richard E. Wolf, Cincinnati, Pediatric Psychiatry.
Julius B. Richmond, Chicago, Pediatric Psychiatry.
Susan C. Dees, Durham, N. C., Pediatric Allergy.
Weston M. Kelsey, Winston-Salem, N. C., Electrolyte and Mineral Balance.
Harry H. Gordon, Baltimore, Problems in the Management of the Premature and Newborn Infant.
J. Cyril Peterson, Nashville, Tenn., Pediatric Hematology.

Round-table discussions (half day courses with limited enrollment for from 35 to 50) will be run concurrently with the general sessions Oct. 6-8. Fee for each discussion is $5. During the general sessions there will be symposiums on "Health Evaluation of the Normal Child" (chairman, Dr. Thomas E. Shaffer, Columbus, Ohio); "Physiology of the Gastrointestinal Tract and Its Functional Disturbances" (chairman, Dr. L. Emmett Holt Jr., New York); "Respiratory Problems Affecting the Premature and Full-Term Infant" (chairman, Dr. Stewart H. Clifford, Boston); and "Respiratory Viral Diseases" (chairman, Dr. Joseph Stokes Jr., Philadelphia). Dr. Sidney Farber, Boston, will conduct clinical pathological conferences Monday, 2-5 p. m. and with Dr. Waldo E. Nelson, Philadelphia, Friday, 11:20 a. m. Thursday morning the Borden award paper will be read by Dr. Lawson Wilkins, Baltimore; the first Mead Johnson award paper by Drs. Frederick C. Robbins and Thomas H. Weller, Boston; and the second Mead Johnson award paper by Dr. Margaret H. Smith, New Orleans. The annual banquet will be held Thursday evening.

Southwestern Surgical Congress.—This congress will hold its annual meeting at the Hotel Utah, Salt Lake City, Sept. 21-23 under the presidency of Dr. Louis P. Good, Texarkana, Ark. Morning sessions will open at 8 a. m. with the showing of motion pictures. Monday, 11 a. m., Dr. Warren H. Cole, Chicago, will present "Management of Strictures of the Common Duct." At 9:50 a. m. Drs. James Barrett Brown, St. Louis, and Minot P. Fryer, St. Louis, will speak on "Management of Hemangioma and Nevi." At 2 p. m. Dr. William H. Moretz, Salt Lake City, will serve as moderator for a panel on trauma, with the following participants, all of Salt Lake City: Drs. Woodrow Nelson, Chester B. Powell, Paul A. Pemberton, Preston R. Cutler, and Robert R. Robinson Jr. At 3:30 p. m. the sessions will adjourn for a trip to Brighton Resort. Tuesday, 9:20 a. m., Dr. Henry Plenk, Salt Lake City, will speak by invitation on "Gastric Ulcers—A Correlative Study," after which Dr. Samuel F. Marshall, Boston, will discuss "The Problem of Jejunal Ulcer." At 11 a. m. Dr. Everett D. Sugarbaker, Jefferson City, Mo., will present "Internal Mammary Node Removal in Continuity with Radical Mastectomy." At 2 p. m. Dr. Marshall will be guest moderator for a panel on "Management of Goitre," in which Drs. Lawrence P. Engel, Kansas City, Mo., Geno Saccomanno, Grand Junction, Colo., and John Z. Bowers, Salt Lake City, will serve as participants. At 3 p. m. Dr. Goode will deliver the presidential address, "The Methods and Manners of Great Men of Medicine." Cocktails, 6:30-7:45 p. m., at the Alta Club will precede the dinner dance. Wednesday, 9:40 a. m., Dr. Philip B. Price, Salt Lake City, will speak on "An Experimental Study of Burn Wounds." At 11 a. m. Dr. Marshall will discuss "Surgical Management of Regional Enteritis and Its Complications." At 2 p. m. there will be a panel on "Diseases of the Colon and Rectum" with Dr. Thomas G. Orr, Kansas City, Kan., as moderator, and Drs. Edgar J. Poth, Galveston, Texas, Kenneth C. Sawyer, Denver, and Leo J. Starry, Oklahoma City, as participants. Luncheon and roundtable discussions will be held daily, 12:30-2 p. m.

College of Surgeons Meeting in Chicago.—The annual clinical congress of the American College of Surgeons will be held at the Conrad Hilton, Chicago, Oct. 3-9. Dr. Harold L. Foss, Danville, Pa., president, will preside at the opening evening session, at which Dr. Fred W. Rankin, Lexington, Ky., will be installed as president for 1954. Subjects for panel discussion include "Management of Gastric Ulcers," "Carcinoma of the Mouth," "Blood Transfusions: Complications and Their Management," "Polyposis of the Colon," "Surgery of the Spleen," and "Malignant Thyroid Disease." Panel discussions in the surgical specialties will be held Friday afternoon. On Tuesday, 2-5 p. m., there will be a symposium on trauma at the Eighth Street Theatre. Wednesday, 2-5 p. m., a symposium on cancer will be held at the John B. Murphy Memorial Auditorium. Thursday, 1:30-3 p. m., a symposium on graduate training in surgery and the surgical specialties is scheduled for the Conrad Hilton. A motion picture symposium on unusual conditions encountered in abdominal surgery will be held Thursday, 8-10 p. m. Clinical pathological conferences are scheduled for 1:30 p. m. Monday and Wednesday. Surgical procedures at Albert Merritt Billings Hospital will be color televised to the hotel every day under the sponsorship of Smith, Kline and French Laboratories of Philadelphia. Twelve forums on fundamental surgical problems will present the latest research findings. At an evening session Monday, Dr. Foss will deliver the presidential address. The eighth Martin Memorial lecture will be delivered by Sir James Paterson Ross, vice-president, Royal College of Surgeons of England, who will discuss "Science and Surgery." During the Wednesday evening session Dr. J. William Hinton, New York, will speak on "Cardiac Arrest: Etiology and Management from a Study of Over 1,300 Cases," and Dr. Francis D. Moore, Boston, will discuss "Metabolic and Electrolyte Abnormalities in Severely Ill Cardiac Patients and Individuals with Advanced Cancer." "Present Day Problem of Nonpenetrating Abdominal Trauma" is the subject of the Oration on Trauma to be delivered by Dr. William L. Estes Jr., Bethlehem, Pa. The Friday evening session at Medinah Temple will close with an address on "The Responsibility of a Heritage of Idealism" by Dr. Fred W. Rankin. Registration fee for nonfellows and fellows whose dues are not paid to Dec. 31, 1952, will be $20. Registration forms may be obtained from the American College of Surgeons, 40 E. Erie St., Chicago 11.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

	Sept. 5, 1953		
Area	Paralytic Type	Total Cases Reported	Sept. 6, 1952
New England States			
Maine	10	22	10
New Hampshire	..	1	5
Vermont	3	7	..
[illegible]	17	40	40
[illegible]	6	22	7
Connecticut	5	32	32
Middle Atlantic States			
New York	58	196	154
New Jersey	40	68	61
Pennsylvania	..	78	130
East North Central States			
Ohio	27	178	156
Indiana	..	39	112
Illinois	43	165	295
[illegible]	47	159	275
[illegible]	..	56	198
West North Central States			
Minnesota	45	188	283
Iowa	2	30	241
Missouri	32	85	139
North Dakota	1	14	20
South Dakota	..	8	39
Nebraska	4	9	211
Kansas	..	35	162
South Atlantic States			
[illegible]	..	1	12
[illegible]	19	39	7
District of Columbia	1	5	19
Virginia	11	32	58
West Virginia	12	31	54
North Carolina	12	30	34
South Carolina	4	8	16
Georgia	6	15	28
Florida	9	26	30
East South Central States			
Kentucky	11	20	124
Tennessee	9	25	55
Alabama	4	8	25
Mississippi	1	8	31
West South Central States			
Arkansas	12	17	25
Louisiana	16	24	12
Oklahoma	2	22	95
Texas	19	62	195
Mountain States			
Montana	5	19	16
Idaho	..	2	11
Wyoming	..	4	3
Colorado	6	8	48
New Mexico	..	5	29
Arizona	7	29	14
Utah	..	19	4
Nevada	..	..	2
Pacific States			
Washington	3	30	102
Oregon	16	26	32
California	89	183	166
Territories and Possessions			
Alaska	1	..	..
Hawaii	1	..	3
Puerto Rico	..	..	..
Total	616	2,132	3,820

PHILIPPINE ISLANDS

Pilot Project in Bilharziasis Control.—Plans have been drawn for construction of a technical center on the Island of Leyte to serve as the headquarters for a six year pilot project in bilharziasis control. This building will house research laboratories and administrative offices, as well as an aquarium for the study of snails, vectors of bilharziasis. It is estimated that 40 persons will be employed at the center. A three man international team to be provided by WHO for this project will work with a matching team of experts from the Department of Health of the Philippines. The aim of the pilot project will be to determine the best method of controlling bilharziasis, which is believed to afflict hundreds of thousands of persons in the Philippines. The length of the project is necessitated by the fact that there is insufficient knowledge concerning practicable and economical means in the control of this disease.

CANADA

National Immunization Week.—National Immunization Week will be observed from Sept. 27 to Oct. 3, under the leadership of the Health League of Canada. This is a nationwide educational campaign to bring to the attention of all parents the protection against diphtheria, whooping cough, lockjaw, and smallpox that is available for their children. Dr. Franklyn O. Wishart, professor of hygiene and preventive medicine, University of Toronto, is chairman of the Health League's National Immunization Committee.

FOREIGN

Aero Medical Meeting.—The interim meeting of the Aero Medical Association will be held under the auspices of the French Speaking Branch at the University of Brussels Medical School, Brussels, Belgium, Sept. 24-27. Rear Admiral Bertrand Groesbeck Jr. (MC) USN (Ret.), Washington, D. C., is president of the association, and Major General Charles Sillevaerts, former chief of the Belgian Air Force Medical Service, is president of the French speaking group. A symposium on jet pilot fatigue will be held Thursday. Other topics to be discussed include: "Modifications of Arterial Pressure of Men During Breathing in Overpressure," "Threshold of Organic Disturbances During Inhalation of Pure Oxygen," "Some Changes of Performances with Age and Their Reference to Aircrew," "Medical Aspects of Abnormal Use of Ejectable Seats," "Research on Human Factor in Accidents," "Is Electrophrenic Respiration of Any Use in the Reanimation of Subjects in Anoxemic Fainting State?" and "Research on the Pharmaco-Dynamic Factors Which Can Modify Endurance to Anoxia."

DEATHS IN OTHER COUNTRIES

Dr. Erasto Gaertner, mayor of the city of Curitiba, State of Parana, Brazil, died May 19, 1953. Dr. Gaertner was professor of the surgical clinic, ex-professor cathedrat of obstetrics, and professor of the urologic clinic of the faculty of the University of Parana. He was founder and director of the Institute of Medicine and Surgery of Parana, as well as founder of the clinic of tumors of the Institute of Medicine and Surgery of Parana. He served as deputy and constituent of the State Assembly of Parana in 1935, as deputy constituent of the National Assembly in 1946, and he was a member of the committee on education and culture of the Deputy Chambers.

CORRECTION

Carbon Dioxide Inhalation in Muscular Rigidity.—In the article on this subject in The Journal, Aug. 22, the word alkylosis in the second paragraph on page 1624 under the heading "Background" should be alkalosis.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Clinical Meeting, St. Louis, Dec. 1-4.
1954 Annual Meeting, San Francisco, June 21-25.
1954 Clinical Meeting, Miami, Florida, Nov. 30-Dec. 3.
1955 Annual Meeting, Atlantic City, N. J., June 6-10.
1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Sept. 30-Oct. 2. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago 10, Director.

American Academy for Cerebral Palsy, Western Hills Hotel, Fort Worth, Texas, Oct. 30-31. Dr. Harry E. Barnett, 116 S. Michigan Blvd., Chicago 3, Secretary.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 12-16. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

American Academy of Pediatrics, Municipal Auditorium, Miami, Fla., Oct. 6-9. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Secretary.

American Academy of Tropical Medicine, Brown Hotel, Louisville, Ky., Nov. 12-14. Dr. E. Harold Hinman, University of Puerto Rico, School of Medicine, San Juan 22, P. R., Secretary.

American Association of Blood Banks, LaSalle Hotel, Chicago, Oct. 17-20. Miss Marjorie Saunders, 3500 Gaston Ave., Dallas 4, Texas, Secretary.

American Association of Medical Clinics, Congress Hotel, Chicago, Oct. 9-11. Dr. Edwin P. Jordan, P. O. Box 114, Charlottesville, Va., Executive Director.

American Association of Medical Record Librarians, Palace Hotel, San Francisco, Oct. 5-9. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Secretary.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 1-3. Dr. James K. Stack, 700 North Michigan Blvd., Chicago, Secretary.

American Cancer Society, New York, Nov. 2-6. Dr. Charles S. Cameron, 47 Beaver St., New York 4, Medical Director.

American Clinical and Climatological Association, The Homestead, Hot Springs, Va., Nov. 2-4. Dr. Marshall N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Cardiology, Hotel Statler, Cleveland, Ohio, Nov. 6-7. Dr. Philip Reichert, 480 Park Ave., New York 22, Secretary.

American College of Surgeons, Conrad Hilton Hotel, Chicago, Oct. 5-9. Dr. Michael L. Mason, 40 East Erie St., Chicago, Secretary.

American Dental Association, Cleveland, Sept. 28-Oct. 1. Dr. Harold Hillenbrand, 222 E. Superior St., Chicago 11, General Secretary.

American Fracture Association, Mission Inn, Riverside, Calif., Oct. 12-15 Dr. H. W. Wellmerling, 120 S. LaSalle St., Chicago 3, Secretary.

American Medical Writers' Association, Elk's Club, Springfield, Ill., Sept. 23. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

American Public Health Association, Hotel New Yorker and Hotel Statler, New York, Nov. 9-13. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Roentgen Ray Society, Netherland Plaza, Cincinnati, Sept. 29-Oct. 2. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

American School Health Association, Hotel New Yorker, New York, Nov. 9-13. Dr. A. O. DeWeese, 515 East Main St., Kent, Ohio, Secretary.

American Society of Anesthesiologists, Olympic Hotel, Seattle, Oct. 6-9. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago, Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicago, Oct. 12-16. Dr. Clyde G. Culbertson, 1040 W. Michigan St., Indianapolis, Secretary.

American Society for the Study of Arteriosclerosis, Hotel Knickerbocker, Chicago, Nov. 1-2. Dr. O. J. Pollak, P. O. Box 228, Dover, Del., Secretary.

American Society of Tropical Medicine and Hygiene, Brown Hotel, Louisville, Ky., Nov. 12-14. Dr. John E. Larsh Jr., University of North Carolina, School of Public Health, Chapel Hill, N. C., Secretary.

Association of American Medical Colleges, Hotel Claridge, Atlantic City, N. J., Oct. 26-28. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of Life Insurance Medical Directors of America, Hotel Statler, New York, Oct. 14-16. Dr. Henry B. Kirkland, P. O. Box 594, Newark 1, N. J., Secretary.

Association of Medical Illustrators, Sheraton Hotel, Baltimore, Oct. 5-7. Miss Evelyn J. Erickson, 1512 St. Antoine St., Detroit 26, Secretary.

Association of Military Surgeons of the United States, Hotel Statler, Washington, D. C., Nov. 8-11. Dr. R. R. Sayers, Armed Forces Institute of Pathology, Washington 25, D. C., Secretary.

Association of State and Territorial Health Officers, Washington Hotel, Washington, D. C., Nov. 4-7. Dr. John D. Porterfield, 306 Ohio Depts. Bldg., Columbus 15, Ohio, Secretary.

Central Association of Obstetricians and Gynecologists, The Shamrock, Houston, Texas, Nov. 5-7. Dr. Harold L. Gainey, Suite 602, 116 South Michigan Ave., Chicago 3, Secretary.

Central Neuropsychiatric Association, Claypool Hotel, Indianapolis, Oct. 15-17. Dr. Hamilton Ford, 112 North Blvd., Galveston, Texas, Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 12-16. Dr. Harry P Smith, 203 N. Wabash Ave., Chicago 1, Secretary.

Colorado State Medical Society, Shirley-Savoy Hotel, Denver, Sept. 29-Oct. 2. Mr. Harvey T. Stethman, 835 Republic Bldg., Denver 2, Executive Secretary.

Constantinian Society, Battery Park Hotel, Asheville, N. C., Oct. 18-21. Dr. C. F. Shook, Medical Director, Owens-Illinois Glass Company, Toledo 1, Ohio, Secretary.

Delaware, Medical Society of, Hotel du Pont, Wilmington, Oct. 12-14. Dr. Andrew M. Gehret, 822 North American Bldg., Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Washington, Oct. 5-7. Mr. Theodore Wiprud, 1718 M St. N.W., Washington 6, Secretary.

Gulf Coast Clinical Society, Admiral Semmes Hotel, Mobile, Ala., Oct. 15-16. Dr. William J. Atkinson Jr., 1217 Government St., Mobile 20, Ala., Secretary.

Gulf Coast Conference on Industrial Health, Shamrock Hotel, Houston, Tex., Oct. 1-3. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Tex., Co-Chairman.

Indiana State Medical Association, French Lick, Oct. 19-21. Mr. James A. Waggener, 23 E. Ohio St., Indianapolis 4, Executive Secretary.

Interstate Post Graduate Medical Association of North America, Palmer House, Chicago, Nov. 2-5. Dr. E. R. Schmidt, 1300 University Ave., Madison 5, Wisconsin, Secretary.

Kansas City Southwest Clinical Society, Kansas City, Mo., Sept. 28-Oct. 1. Dr. W. H. Algie, 825 North 7th Street, Kansas City, Kans., Secretary.

Kentucky State Medical Association, Brown Hotel, Louisville, Sept. 22-24. Dr. Bruce Underwood, 620 South Third St., Louisville 2, Secretary.

Michigan State Medical Society, Pantlind Hotel and Civic Auditorium, Grand Rapids, Sept. 23-25. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Secretary.

Midwestern Section of American Federation for Clinical Research, Congress Hotel, Chicago, Oct. 29. Dr. Robert J. Glaser, 600 S. Kingshighway Blvd., St. Louis 10, Secretary.

Mississippi Valley Medical Society, Springfield, Ill., Sept. 23-25. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

National Gastroenterological Association, Hotel Biltmore, Los Angeles, Oct. 12-17. Dr. A. Xerxes Rossien, 1819 Broadway, New York 23, Secretary.

National Proctologic Association, Congress Hotel, Chicago, Oct. 15-17. Dr. George E. Mueller, 59 East Madison St., Chicago 2, Secretary.

National Society for Crippled Children and Adults, Palmer House, Chicago, Nov. 12-14. Mr. Lawrence J. Linck, 11 South LaSalle St., Chicago 3, Secretary.

Neurosurgical Society of America, The Broadmoor, Colorado Springs, Colo., Sept. 23-27. Dr. C. D. Hawkes, 22 North Manassas St., Memphis 5, Tenn., Secretary.

Nevada State Medical Association, Carter Hotel, Elko, Sept. 24-26. Dr. William A. O'Brien III, 505 Chestnut St., Reno, Secretary.

New England Obstetrical and Gynecological Society, Hotel Somerset, Boston, Oct. 28. Dr. Carmi R. Alden, 270 Commonwealth Ave., Boston, Secretary.

New Hampshire Medical Society, Equinox House, Manchester, Vt., Oct. 4-6. Dr. Deering G. Smith, 44 Chester St., Nashua, Secretary.

Oklahoma City Clinical Society, Oklahoma City, Oct. 26-29. Miss Alma F. O'Donnell, 512 Medical Arts Bldg., Oklahoma City 2, Executive Secretary.

Omaha Mid-West Clinical Society, Hotel Paxton, Omaha, Oct. 26-30. Miss Irene Rau, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Oregon State Medical Society, Heathman Hotel, Portland, Oct. 14-17. Dr. Charles E. Littlehales, 833 S.W. Eleventh Ave., Portland 5, Secretary.

Pennsylvania, Medical Society of the State of, William Penn Hotel, Pittsburgh, Sept. 21-24. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

Regional Meetings, American College of Physicians:

Western New York, Syracuse, Oct. 9. Dr. E. C. Reifenstein, 109 South Warren St., Syracuse 2, Governor.

Ohio, Dayton, Oct. 9. Dr. Charles A. Doan, Ohio State University College of Medicine, Columbus 10, Governor.

Montana-Wyoming, Missoula, Mont., Oct. 9-10. Dr. Harold W. Gregg, 127 West Park Street, Butte, Mont., Governor.

New England—Conn., Maine, Mass., N. H., R. I., Vt.—Hartford, Conn., Oct. 28. Dr. John C. Leonard, 80 Seymour St., Hartford 15, Conn., Chairman.

New Jersey, Trenton, Nov. 4. Dr. Edward C. Klein Jr., 73 Lincoln Park, Newark 2, Governor.

Southeastern—Cuba, Alabama, Florida, Georgia, South Carolina—St. Simons, Sea Island, Ga., Oct. 16-17. Dr. Carter Smith, 384 Peachtree St. N.E., Atlanta 3, Ga., Chairman.

Regional Meetings, American Rheumatism Association:

Ohio and Western Pennsylvania, Mayflower Hotel, Akron, Ohio, Nov. 11. Dr. Roger Q. Davis, 1405 Goodyear Blvd., Akron 5, Ohio, Chairman.

South Central Branch, American Urological Association, Kansas City, Mo., Sept. 20-23. Dr. Rex E. Van Duzen, 721 Medical Arts Bldg., Dallas, Texas, Chairman.

Southern Medical Association, Municipal Auditorium, Atlanta, Ga., Oct. 26-29. Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham 3, Ala., Secretary.

Southwestern Medical Association, El Conquistador Hotel, Tucson, Ariz., Oct. 29-31. Dr. C. C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

Southwestern Surgical Congress, Hotel Utah, Salt Lake City, Sept. 21-23. Dr. C. R. Rountree, 1227 Classen St., Oklahoma City 3, Secretary.

Tennessee Valley Medical Assembly, Read House Hotel, Chattanooga, Sept. 28-29. Dr. William G. Stephenson, 612 Medical Arts Bldg., Chattanooga 3, President.

Vermont State Medical Society, Equinox House, Manchester, Oct. 4-6. Dr. James P. Hammond, 542 Main St., Bennington, Secretary.

Virginia, Medical Society of, Hotel Roanoke, Roanoke, Oct. 18-21. Mr. Robert I. Howard, 1105 W. Franklin St., Richmond 20, Executive Secretary.

Western Orthopedic Association, Sun Valley, Idaho, Oct. 5-8. Dr. Forrest L. Flashman, 1301 Spring St., Seattle 4, Secretary.

Wisconsin, State Medical Society of, Hotel Schroeder, Milwaukee, Oct. 5-8. Mr. Charles H. Crownhart, 704 East Gorham St., Madison 3, Secretary.

FOREIGN

Association of Surgeons of Great Britain and Ireland, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

Canadian Medical Association, Vancouver, B. C., Canada, June 18-22, 1954. Dr. T. C. Routley, 135 St. Clair Ave. W., Toronto 5, Ont., Canada, General Secretary.

Congress of International Anesthesia Research Society, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

Interim Meeting, Aero Medical Association, University of Brussels Medical School, Brussels, Belgium, Sept. 24-27. Dr. Andre Allard, Medical Director of SABENA, 145 Rue Royale, Brussels, Belgium, Secretary.

International Cancer Congress, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

International Conference on Thrombosis and Embolism, Basle, Switzerland, July 15-19, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

International Congress on Group Psychotherapy, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

International Congress of Hydroclimatism and Thalassotherapy, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zelenl Venac 1, Belgrade, Yugoslavia, Secretary General.

International Congress of International College of Surgeons, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U.S.A., Secretary-General.

International Congress on Mental Health, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

International Congress on Obstetrics and Gynecology, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

International Congress of Paediatrics, Havana, Cuba, Oct. 12-17. Prof Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

International Congress of Psychology, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

International Congress for Psychotherapy, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

International Gerontological Congress, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

International Leprosy Congress, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

International Office of Documentation of Military Medicine, Rome, Italy, Oct. 14-18. Colonel Medecin Prof. A. Campana, Office of the Ministero della Difesa-Esercito, Rome, Italy, Secretary.

Journees Medicales, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geofroix, Colombes (Seine) France.

Latin American Congress of Obstetrics and Gynecology, Buenos Aires, Argentina, Oct. 26-31.

Latin American Congress of Otorhinolaryngology, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro Medico, Caracas, Venezuela, Secretary-General.

Pacific Science Congress, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, Mexico, D.F., Mexico, Feb. 28-March 4, 1954.

Pan American Medical Association, International Medical Cruise Congress, S. S. Nieuw Amsterdam, Jan. 6-22, 1954. Dr. Joseph J. Eller, 745 Fifth Avenue, New York 22, N. Y., U. S. A., Executive Director.

Pan American Medical Women's Alliance, Beekman Towers Hotel, New York, N. Y., Sept. 24-Oct. 1. Dr. Ina Marsh, 140 Linwood Ave., Buffalo, N. Y., U. S. A., Registration Chairman.

Persian Gulf Medical Society, Dhahran, Saudi Arabia, Dec. 7-8. Dr. N. J. Conan Jr., Department of Internal Medicine, Arabian American Oil Company, Dhahran, Saudi Arabia, Secretary.

Regional Meeting, American College of Physicians, San Juan, Puerto Rico, Oct. 15-17. Dr. R. Rodriquez-Molina, Veterans Administration Center, San Juan, Puerto Rico, Governor.

Sectional Meeting, American College of Surgeons, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination*. Montgomery, June 22-24, 1954. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery.

Arizona:* *Examination*. Phoenix, Oct. 22-23. *Endorsement*. Phoenix, Oct. 24. Executive Secretary, Mr. Robert Carpenter, 401 Security Bldg., Phoenix.

Arkansas:* *Examination*. Little Rock, Nov. 5-6. Sec., Dr. Joe Verser, Harrisburg.

Colorado:* *Reciprocity*. Denver, Oct. 13. Final date for filing application was Sept. 14. *Examination*. Denver, Dec. 15-16. Final date for filing application is Nov. 14. Executive Secretary, Miss Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

Connecticut:* *Regular*. *Examination*. New Haven, Nov. 10-11. Reciprocity actions are taken continuously. Secretary to the Board, Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic*. Derby, Nov. 10-11. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

Delaware: Dover, Jan. 12-14, 1954. Sec., Dr. Joseph S. McDaniel, 229 South State St., Dover.

Florida:* *Examination*. Jacksonville, Nov 22-24. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami 36.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Director of Medical Services, Guam Memorial Hospital, Agana.

Idaho: Boise, Jan. 11-13, 1954. Executive Secretary, Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: Chicago, Oct. 6-8. Superintendent of Registration, Mr. Fredric B. Selcke, State House, Springfield.

Iowa:* *Examination*. Des Moines, Dec. 7-9. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Topeka, Dec. 9-10. Sec., Dr. O. W. Davidson, 864 New Brotherhood Bldg., Kansas City.

Maine: Portland, Nov. 12-13. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

Maryland: *Examination*. Baltimore, Dec. 8-11. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore 1.

Michigan:* *Examination*. Lansing, Oct. 14-16. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing 8.

Minnesota:* Minneapolis, Oct. 20-22. Sec., Dr. E. M. Jones, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity*. Jackson, December. Assistant Secretary, Dr. R. Whitfield, Old Capitol, Jackson 113.

Missouri: Kansas City, Oct. 22-24. Ex. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

Montana: Helena, Oct 5. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

Nebraska:* *Examination*. Omaha, June 1954. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada:* Reno, Oct. 6. Sec., Dr. George H. Ross, 112 Curry St., Carson City.

New Jersey: *Examination*. Trenton, Oct. 20-23. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

New Mexico:* Oct. 12-13. Santa Fe. Sec., R. C. Derbyshire, 227 E. Palace Ave., Sante Fe.

New York: *Examination*. New York, Syracuse, Buffalo and Albany, Oct. 6-9. Sec., Dr. Stiles D. Ezell, 23 South Pearl St., Albany.

North Carolina: *Reciprocity*. Asheville, Oct. 12. Sec., Dr. Joseph J. Combs, 716 Professional Bldg., Raleigh.

North Dakota: *Examination*. Grand Forks, Jan. 6-9, 1954. *Reciprocity*. Grand Forks, Jan. 9. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Examination*. Columbus, December. *Reciprocity*. Columbus, Oct. 6. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

Oregon:* *Reciprocity*. Portland, Oct. 16-17. Sec., Dr. Wilmot C. Foster, 609 Failing Bldg., Portland 4.

Pennsylvania: *Examination*. Philadelphia, January 1954. Acting Secretary, Mrs. Margaret G. Steiner, Box 911, Harrisburg.

Rhode Island:* *Examination*. Providence, Oct. 1-2. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Reciprocity*. Columbia, Sept. 21. Sec., Mr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota:* *Examination*. Sioux Falls, Jan. 19-20, 1954. Reciprocity can be obtained at any time between meetings of board. Executive Secretary, Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Tennessee:* *Examination*. Memphis, Sept. 30-Oct. 1. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

Texas: Fort Worth, Nov. 12-14. Reciprocity applicants must be completed 30 days prior to the meeting date. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

West Virginia: Charleston, Oct. 19. Sec., Dr. N. H. Dyer, State Office Bldg., Charleston 5.

Wisconsin:* *Reciprocity*. Madison, October. *Examination and Reciprocity*. Madison, Jan. 12-14, 1954. Sec., Dr. A. G. Koehler, 46 Washington Blvd., Oshkosh.

Wyoming: Cheyenne, Oct. 5. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity*. On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

Arkansas: *Examination*. Little Rock, Oct. 6-7. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock.

Connecticut: *Examination*. New Haven, Oct. 10. Address: State Board of Healing Arts, 52 Whitney Ave., New Haven 10.

District of Columbia: *Examination*. Washington, Oct. 19-20. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

Florida: *Examination*. Gainesville, Nov. 7. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

Iowa: *Examination*. Des Moines, Oct. 13. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination*. Detroit and Ann Arbor, Oct. 9-10. Sec., Mrs. Ann Baker, 410 W. Allegan St., Lansing.

Minnesota: *Examination*. Minneapolis, Oct. 6-7. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.

Nebraska: *Examination*. Omaha, Oct. 6-7. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada: *Examination*. Reno, Oct. 6. Sec., Dr. Donald G. Cooney, Box 9005, University Station, Reno.

New Mexico: *Examination*. Santa Fe, Oct. 18. Sec., Mrs. Marguerite Cantrell, Box 1592, Santa Fe.

South Dakota: *Examination*. Vermillion, Dec. 4-5. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Tennessee: *Examination*. Memphis, Sept. 23-24. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

Texas: *Examination*. Dallas and Galveston, October. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Wisconsin: *Examination*. Madison, Sept. 19. Final date for filing application is Sept. 11. Milwaukee, Dec. 5. Final date for filing application is Nov. 27. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

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* Basic Science Certificate required.

DEATHS

Woglom, William Henry ⊕ Teaneck, N. J.; born in Brooklyn Sept. 13, 1879; Columbia University College of Physicians and Surgeons, New York, 1901; assistant in pathology at the Long Island College Hospital in Brooklyn, 1907-1908; pathologist and bacteriologist for the department of health of New York City, 1908-1909; from 1909 to 1912 assistant in cancer research at Columbia and in 1911-1912 served as assistant to the director of the Imperial Cancer Research Fund in London; from 1912 to 1917 assistant professor of cancer research, Institute of Cancer Research at Columbia University College of Physicians and Surgeons, where he was an associate professor from 1917 to 1946, when he became professor emeritus; in 1936 received a medal from Columbia University for conspicuous alumni service; an Affiliate Fellow of the American Medical Association; in 1937 president of the American Association for Cancer Research, of which he was at one time vice-president, for many years a member of the council, and secretary-treasurer; past president of the New York Pathological Society; member of the American Association for the Advancement of Science, Society of Experimental Biology and Medicine, and the Holland Society; an associate of the Royal Photographic Society of Great Britain; member of the scientific advisory committee of the International Cancer Research Foundation from 1941 to 1946; author of "Discoverers for Medicine" and several monographs on cancer; translated several technical books to English from French and German, including "Riddle of Cancer"; for many years editor of the *Journal of Cancer Research*; died in Columbia-Presbyterian Medical Center in New York City Aug. 8, aged 73, of cancer.

Wheaton, Clarence Loyd ⊕ Chicago; born in Fort Pembina, N. D., May 27, 1873; Bellevue Hospital Medical College, New York, 1896; an Associate Fellow of the American Medical Association and member of its House of Delegates in 1909; member of the American College of Chest Physicians and the American Trudeau Society; past president of the North Side Branch of the Chicago Medical Society and the Chicago Tuberculosis Society; member of the board of directors of the National Tuberculosis Association; at one time vice-president of the Tuberculosis Institute of Chicago and Cook County of which he was honorary director; formerly instructor in medicine at Rush Medical College; served during World War I as president of the tuberculosis board of the U. S. Army at Camp Grant, Ill.; on the staffs of the City of Chicago Municipal Tuberculosis Sanitarium, Evangelical Deaconess Hospital, and the Illinois Masonic Hospital, where he died June 4, aged 80, of arteriosclerotic heart disease.

Johnson, Leighton Foster ⊕ Boston; born in Hingham, Mass., Nov. 30, 1890; Boston University School of Medicine, 1915; professor of otolaryngology at his alma mater; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology, American Laryngological, Rhinological and Otological Society, New England Otolaryngological Society, and the American Broncho-Esophagological Association; served during World War I; fellow of the American College of Surgeons; chief of otolaryngological service, Massachusetts Memorial Hospitals; consultant in otolaryngology, Norwood (Mass.) Hospital, Westboro (Mass.) State Hospital, and Massachusetts Hospital School in Canton; consultant in laryngology, Cape Cod Hospital, Hyannis, and Martha's Vineyard Hospital in Oak Bluffs; consultant, Burbank Hospital in Fitchburg, Mass.; died in Wellfleet July 21, aged 62.

Pugliese, Francis Michael ⊕ Wilkes-Barre, Pa.; born in Calimera, Italy, Feb. 7, 1899; University of Pennsylvania School of Medicine, Philadelphia, 1923; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; member of the Alumni Association of Mayo Foundation; at one time county treasurer; lieutenant colonel in the U. S. Army during World War II, serving in the European Theatre as chief of surgery of a Station Hospital; formerly a fellow in surgery of the Mayo Foundation, Rochester, Minn.; consultant at St. Joseph's Hospital in Hazleton; affiliated with Nanticoke (Pa.) State Hospital, Pittston (Pa.) Hospital, and the Mercy Hospital, where he died Aug. 13, aged 54, of cerebral hemorrhage and hypertensive cardiorenal disease.

Braden, Albert Henry ⊕ Houston, Texas; born in Bernardo, Texas, Oct. 30, 1886; University of Texas School of Medicine, Galveston, 1914; specialist certified by the American Board of Pathology; member of the American College of Allergists, American Society of Clinical Pathologists, International Correspondence Society of Allergists, Post Graduate Medical Assembly of South Texas, Southern Medical Association, Southwest Allergy Forum, and the American Association for the Advancement of Science; past president of the Texas Society of Pathologists; for many years affiliated with St. Joseph's Hospital; died in St. Joseph's Hospital July 22, aged 66.

Hohf, Silas Matthew ⊕ Yankton, S. D.; Illinois Medical College, Chicago, 1897; Northwestern University Medical School, Chicago, 1903; fellow of the American College of Surgeons; for 29 years an instructor on the faculty of the University of South Dakota School of Medicine; member of the board of education from 1912 to 1928; in 1928 president of the South Dakota State Medical Association; served during World War I; affiliated with Sacred Heart Hospital, where he died June 28, aged 80, of bronchopneumonia and cerebral arteriosclerosis.

Allen, Edward Carson ⊕ Newton, Mass.; Tufts College Medical School, Boston, 1939; certified by the National Board of Medical Examiners; specialist certified by the American Board of Anesthesiology; member of the American Society of Anesthesiologists; served during World War II; affiliated with Faulkner Hospital in Boston; died July 14, aged 38, of a heart attack.

Allen, Joseph Randolph ⊕ Los Angeles; Northwestern University Medical School, Chicago, 1906; died May 14, aged 78, of cerebral thrombosis and general arteriosclerosis.

Arnold, Laurie James, Lake City, Fla.; North Carolina Medical College, Davidson, 1905; died May 5, aged 75, of coronary occlusion.

Barnaby, Charles W., Daytona Beach, Fla.; Detroit College of Medicine, 1894; died in Halifax District Hospital May 28, aged 87, of uremia and pyelonephritis.

Black, Emil Claudius ⊕ San Diego, Calif.; University of Nebraska College of Medicine, Omaha, 1903; an Associate Fellow of the American Medical Association; affiliated with Mercy and San Diego County General hospitals; died July 2, aged 78, of chronic myocarditis and arteriosclerosis.

Boynton, Lloyd V. ⊕ Peoria, Ill.; St. Louis University School of Medicine, 1906; an Associate Fellow of the American Medical Association; affiliated with St. Francis Hospital, where he was past president of the staff; died in Proctor Hospital July 12, aged 73, of acute coronary thrombosis.

Briscoe, Hugh Alan ⊕ Akron, Ohio; University of Cincinnati College of Medicine, 1918; died in Broward General Hospital, Fort Lauderdale, Fla., June 19, aged 61, of cerebral hemorrhage and hypertension.

Brownell, Emily Margaret Baer ⊕ San Diego, Calif.; University of Illinois College of Medicine, Chicago, 1936; past president of the San Diego Branch of the American Medical Women's Association; affiliated with La Mesa (Calif.) Hospital, Mercy, Quintard, and San Diego County General hospitals; died June 10, aged 43, of massive myocardial infarction.

⊕ Indicates Member of the American Medical Association.

Busching, Howard Ellsworth, Wyoming, Ohio; University of Cincinnati College of Medicine, 1920; died in Bethesda Hospital, Cincinnati, July 7, aged 58, of coronary occlusion.

Buschmann, Bronson, Seattle; University of Pennsylvania School of Medicine, Philadelphia, 1947; resident in surgery, King County Hospital; served during World War II; died June 28, aged 29.

Campbell, Colin Clyde, Ashley, N. D.; University of Toronto Faculty of Medicine, Toronto, Ontario, Canada, 1901; served as county health officer; died in Rome, N. Y., July 9, aged 77, of coronary occlusion.

Case, Edward Franklin ⊕ Seattle; Creighton University School of Medicine, Omaha, 1934; served during World War II; died in Doctors Hospital recently, aged 49, of coronary occlusion with infarction of the myocardium.

Curtiss, Fred Decker, Kenosha, Wis.; Chicago Homeopathic Medical College, 1901; died in Kenosha Hospital April 22, aged 76, of ruptured aneurysm of the abdominal aorta.

Dame, Louis Paul ⊕ Rockford, Ill.; University of Illinois College of Medicine, Chicago, 1917; formerly medical missionary in Arabia; served during World War I; affiliated with St. Anthony Hospital, where he died July 2, aged 66, of gastrointestinal and pulmonary hemorrhage and cirrhosis of the liver.

Danglade, James Harold ⊕ Kansas City, Mo.; University of Kansas School of Medicine, Kansas City, 1926; assistant professor of medicine at his alma mater; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; served during World War II; affiliated with St. Luke's Hospital, where he was past vice-president of the executive staff; died in Veterans Administration Hospital Aug. 4, aged 52, of hemorrhage from esophageal varices.

Drake, Clifford Cochrane, Roanoke, Va.; University of Nashville (Tenn.) Medical Department, 1898; died May 18, aged 80, of carcinoma of the prostate.

Fuller, Tilman, Oklahoma City, Okla. (licensed in Oklahoma under Act of 1908); died July 16, aged 80, of arteriosclerotic heart disease.

Gee, Lemuel Edmond ⊕ Broken Bow, Okla. (licensed in Oklahoma under the Act of 1908); served as city health officer; at one time health officer of Hunt County, Texas; for many years physician for the Dierks Lumber and Coal Company; died in DeQueen (Okla.) General Hospital July 14, aged 74, of coronary thrombosis.

Griffith, Martin E. ⊕ Monessen, Pa.; Jefferson Medical College of Philadelphia, 1885; served two terms as coroner; company doctor for the Pittsburgh Steel Company for 25 years; affiliated with the Memorial Hospital in Monongahela, where he died May 1, aged 92.

Haig, Thomas Raymond ⊕ Carlsbad, Calif.; Stanford University School of Medicine, San Francisco, 1922; formerly clinical instructor in orthopedics at his alma mater; for many years practiced in Sacramento, where he was a trustee of the Sutter General Hospital; died suddenly in San Francisco July 13, aged 57, of coronary thrombosis.

Harris, Dean Wilson ⊕ Fremont, Mich.; Eclectic Medical College, Cincinnati, 1922; past president of the Newaygo County Medical Society; on the staff of the Gerber Memorial Hospital; died in St. Mary's Hospital, Grand Rapids, July 6, aged 60, of left bundle branch block, recurrent coronary occlusion with infarction, and cholelithiasis.

Hedrick, Donald William ⊕ Tampa, Fla.; University of Michigan Medical School, Ann Arbor, 1928; specialist certified by the American Board of Orthopaedic Surgery; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; on the staffs of St. Joseph's Hospital and Tampa Municipal Hospital, where he died May 27, aged 50, of coronary arteriosclerosis.

Hoover, James J. D. ⊕ Terre Haute, Ind.; Meharry Medical College, Nashville, Tenn., 1908; owner and superintendent of the Hoovers' Sanitarium; died April 21, aged 71, of coronary insufficiency.

Huson, William Joseph ⊕ Covington, Ga.; University of Georgia School of Medicine, Augusta, 1924; served during World War I; died in Atlanta June 27, aged 58, of cardiorespiratory failure.

Jamison, Alfred, Marks, Miss.; Memphis (Tenn.) Hospital Medical College, 1908; died July 11, aged 72, of angina pectoris.

Jones, Henry Durst ⊕ Schleswig, Iowa; State University of Iowa College of Medicine, Iowa City, 1903; died July 4, aged 73, of cerebral arteriosclerosis.

Joyce, Edgar Collins, Tuckahoe, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1895; served during Spanish-American War and World War I; formerly on the staffs of St. Vincent's and Fordham hospitals in New York; died in Veterans Administration Hospital in Beacon, July 27, aged 81, of arteriosclerotic heart disease.

Kirksey, James Jackson ⊕ Morganton, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1921; died in the Grace Hospital May 16, aged 60, of an acute heart attack.

Kirkwood, Robert Carnahan, Hampton, Va.; Jefferson Medical College of Philadelphia, 1908; died in Veterans Administration Hospital May 24, aged 66, of coronary thrombosis.

Kushell, Maria Dora, New York City; University of Kharkov Faculty of Medicine, Russia, 1918; affiliated with Gouverneur and Manhattan General hospitals; died in Beth Israel Hospital July 16, aged 59, of cancer.

Laurent, Francis Victor, Maitland, Fla.; Baltimore Medical College, 1908; died May 20, aged 76, of bronchopneumonia and carcinoma of the prostate.

Leitschuh, Linus Frederick ⊕ Winsted, Minn.; University of Minnesota Medical School, Minneapolis, 1938; served during World War II; died in St. Mary's Hospital, Minneapolis, June 28, aged 41, of hepatitis and esophageal varices.

McLarand, Kenneth Carl ⊕ Santa Monica, Calif.; State University of Iowa College of Medicine, Iowa City, 1936; on the staffs of Long Beach (Calif.) Hospital and Santa Monica Hospital; died April 16, aged 47.

McLeod, James Lawrence ⊕ Grand Rapids, Minn.; University of Manitoba Faculty of Medicine, Winnipeg, Canada, 1926; state senator in 1935-1936; affiliated with Itasca Memorial Hospital, where he died June 8, aged 52, of cardiac decompensation and pulmonary embolism.

Malick, Ada Luella, Piqua, Ohio; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; died June 30, aged 78, of heart disease.

Morgenthaler, Sophia, Daytona Beach, Fla.; New York Medical College and Hospital for Women, Homeopathic, New York, 1894; died June 25, aged 56, of organic heart disease.

Morris, Joseph Bowman, Punxsutawney, Pa.; Jefferson Medical College of Philadelphia, 1886; died in Adrian Hospital May 25, aged 92, as the result of a fall.

Murchie, John Talmadge, Portsmouth, Ohio; Rush Medical College, Chicago, 1921; died in Broward General Hospital in Fort Lauderdale, Fla., May 26, aged 60, of bronchogenic carcinoma of the right lung.

Neves, Carl Albert ⊕ Custer, S. D.; Atlanta College of Physicians and Surgeons, 1910; formerly manager, Veterans Administration Center, Hot Springs, died in Veterans Administration Hospital in Fort Snelling, Minn., June 28, aged 66, of bronchogenic carcinoma of the right lung.

Neville, J. C. ⊕ Register, Ga.; Medical College of Georgia, Augusta, 1900; on the staff of Bulloch County Hospital, Statesboro, where he died June 22, aged 80, of injuries received in an automobile accident.

Newsom, Goebel William, Fort Pierce, Fla.; Kansas City (Mo.) University of Physicians and Surgeons, 1929; died May 15, aged 53, of arteriosclerotic heart disease and hypertension.

O'Neill, Silverton Hollingsworth ⊕ Blue Hill, Neb.; College of Physicians and Surgeons, Baltimore, 1907; died June 3, aged 76.

Pember, Clyde Harry, Van Nuys, Calif.; American Medical College, St. Louis, 1898; served during World War I and received the Distinguished Service Cross, Croix de Guerre and the Purple Heart; served on the staffs of various Veterans Administration hospitals; died in Veterans Administration Center in Los Angeles, June 22, aged 80, of coronary thrombosis.

Perry, Henry Ernest ⊕ Newberry, Mich.; Michigan College of Medicine and Surgery, Detroit, 1897; Northwestern University Medical School, Chicago, 1904; past president of the Michigan State Medical Society, Luce County Medical Society, and the Upper Peninsula Medical Society; veteran of the Spanish-American War; formerly affiliated with the Newberry State Hospital; served in the state legislature, 1933-1934; died in Lakeland, Fla., July 9, aged 87, of uremia and arteriosclerotic heart disease.

Putnam, John Lancaster, Lebanon, Ky.; Kentucky School of Medicine, Louisville, 1906; served during World War I; affiliated with Mary Immaculate Hospital, where he died July 7, aged 70, of coronary thrombosis.

Quinn, William Blanck, Jackson Heights, N. Y.; Georgetown University School of Medicine, Washington, D. C., 1926; served during World War II; affiliated with Manhattan General Hospital in New York City; died July 15, aged 52, of a heart attack.

Ramsdell, Robert Leroy ⊕ Austin, Texas; University of Texas School of Medicine, Galveston, 1913; past president of the Dallas County Medical Society; formerly on the staff of the Austin State Hospital; affiliated with Central State Hospital at Norman, Okla.; died in Ardmore, Okla., July 5, aged 71, of cerebral hemorrhage.

Randall, Auvigne Mason ⊕ Ashby, Minn.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1903; on the staff of St. Luke's Hospital; died June 20, aged 72, of coronary occlusion.

Reeve, Edward A. Tanner ⊕ Elbow Lake, Minn.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1897; died June 5, aged 79, of carcinoma of the sigmoid.

Rice, Thompson R. ⊕ Petersburg, Ind.; Hahnemann Medical College and Hospital of Philadelphia, 1892; an Associate Fellow of the American Medical Association; died in St. Mary's Hospital, Evansville, May 9, aged 88, of intestinal obstruction and arteriosclerotic heart disease.

Richardson, John Purver ⊕ Ellensburg, Wash.; Medical College of the State of South Carolina, Charleston, 1919; fellow of the American College of Surgeons; administrator of the Ellensburg General Hospital, where he died July 4, aged 60, of heart failure.

Rooney, Eugene Francis ⊕ New York City; St. Louis University School of Medicine, 1923; specialist certified by the American Board of Pediatrics; served during World War I; director of pediatrics and past president of Misericordia Hospital; affiliated with St. Vincent's Hospital; past president of New York Foundling and St. Clare's hospitals; died in East Northport July 16, aged 57, of acute coronary occlusion.

Rosenfeld, Sydney Cyril ⊕ Chicago; Chicago Medical School, 1937; affiliated with the American Hospital, where he died July 25, aged 46, of multiple sclerosis and terminal bronchopneumonia.

Shafer, John Walter ⊕ Lafayette, Ind.; Rush Medical College, Chicago, 1900; served during World War I; for many years member of the city council; president of the Morocco State Bank; affiliated with St. Elizabeth's Hospital and the Lafayette Home Hospital, where he died July 10, aged 80, of coronary occlusion.

Smith, Francis Michael ⊕ Vicksburg, Miss.; Memphis (Tenn.) Hospital Medical College, 1902; for many years county health officer; formerly health officer of Pine Bluff and of Jefferson County in Arkansas; died July 22, aged 74, of arteriosclerotic heart disease.

Smith, Morton Hartman, Hughesville, Pa.; Medico-Chirurgical College of Philadelphia, 1897; died in Muncy (Pa.) Valley Hospital July 5, aged 79, of coronary occlusion.

Sprague, Emory Russell, Rochester, N. Y.; Hahnemann Medical College and Hospital of Philadelphia, 1904; died July 4, aged 75, of coronary occlusion.

Tinley, Mary Louise ⊕ Council Bluffs, Iowa; Omaha Medical College, 1895; member of the American Academy of General Practice; affiliated with Jennie Edmundson Hospital and the Mercy Hospital; named "Woman of the Year" in March, 1953, by the Women's Division of the Chamber of Commerce, and was awarded a gold inscribed bracelet; died July 24, aged 84, of heart disease.

Townsend, Junius M., Morton, Miss.; Memphis (Tenn.) Hospital Medical College, 1904; died July 13, aged 74, of injuries received in an automobile accident.

Turchi, John Dominic ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1923; affiliated with Misericordia Hospital; died in the Graduate Hospital of the University of Pennsylvania July 13, aged 53, of pneumonia and cerebral vascular accident.

Ullman, Julius ⊕ Buffalo; University of Buffalo School of Medicine, 1893; an Associate Fellow of the American Medical Association; formerly on the faculty of his alma mater; fellow of the American College of Physicians; died Aug. 14, aged 81.

Waterbury, D. Elliot, Melbourne, Fla.; Chicago College of Medicine and Surgery, 1913; died July 23, aged 91, of cerebral hemorrhage and arteriosclerosis.

Wedekind, Robert ⊕ Louisville, Ky.; Hospital College of Medicine, Louisville, 1897; died recently, aged 82, of myocarditis and arteriosclerosis.

Weimer, Edgar Stanley ⊕ Clearwater, Fla.; University of Pittsburgh School of Medicine, 1910; specialist certified by the American Board of Ophthalmology; fellow of the American College of Surgeons; served during World War I; formerly affiliated with the U. S. Public Health Service; died in St. Petersburg July 5, aged 68, of chronic nephritis.

Whitbeck, Sherwood Volkert ⊕ Hudson, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1901; fellow of the American College of Surgeons; on the staff of the Columbia Memorial Hospital, where he died July 23, aged 73, of Parkinson's disease.

Williams, Aubrey H. ⊕ Denver; Gross Medical College, Denver, 1896; formerly on the faculty of the Denver and Gross College of Medicine, and the University of Colorado School of Medicine; died in the Mercy Hospital July 15, aged 83, of fracture of surgical neck of right femur.

Wilson, Robert Patterson Clark, Platte City, Mo.; Ensworth Medical College, St. Joseph, Mo., 1900; superintendent of the Missouri State School in Marshall; died in Marshall July 12, aged 77, of coronary occlusion.

Yates, Oscar Raymond ⊕ Suffolk, Va.; Medical College of Virginia, Richmond, 1916; past president and vice-president of the Seaboard Medical Association; formerly member and chairman of the school board; active in Boy Scout work and in December, 1948, received the Silver Beaver Award presented by the Old Dominion Area Council of Boy Scouts, of which he was a member; served during World War I; chief of staff at Louise Obici Memorial Hospital, where he died July 15, aged 62, of coronary thrombosis.

York, Charles E. ⊕ Chicago; the Hahnemann Medical College and Hospital, Chicago, 1917; affiliated with Illinois Masonic Hospital, where he died July 21, aged 64, of acute myocardial infarction.

FOREIGN LETTERS

AUSTRALIA

The Commonwealth Medical Benefits Scheme.—The final phase of Australia's answer to the socialized medical schemes of Britain and New Zealand was put into operation July 1. The underlying principle of the Commonwealth Medical Benefits Scheme is the support from government funds of voluntary insurance against the costs of professional services. The Commonwealth Health Department has published a schedule of payments that will be made for a comprehensive range of medical services. A "medical benefits" organization must make a benefit available that at least equals the government subsidy.

The patient pays the professional fee, then sends the receipt to the medical benefits organization, which reimburses the patient for about 90% of the fee. The reimbursement is in two halves. One-half is the organization's own benefit and the other half is the government subsidy for the services involved. The organization then, in turn, files a claim with the government fund for the subsidy. No government subsidy is payable, however, unless the patient is a "financial" subscriber to a medical benefits fund. An aspect of this scheme that differs from American prepaid plans is that the Australian scheme covers the cost of "office" medical consultations and domiciliary visits by the general practitioner.

Advantages of this scheme are said to be as follows: 1. It encourages the principle of self-help. 2. It makes use of voluntary organizations to provide the administrative machinery. 3. It preserves the confidential doctor-patient relationship. 4. There is free choice by the patient of hospital, general practitioner, and specialist. The only duty imposed on the physician is to make out an itemized account in accordance with the government fee schedule, to facilitate payment of claims both by the organizations and the government. Unlike the United States where Blue Shield and Blue Cross plans are separate, most organizations in Australia cover both hospital and medical benefits. The largest organization in Australia is the "Medical Benefits Fund of Australia," which is sponsored by the medical profession. All medical benefits funds must be approved by the government, and a list of approved organizations is published in the daily press.

Following is an example of how the medical and hospital benefits scheme works: For purposes of monetary comparison, nine shillings in Australian money is equivalent in exchange value to one United States dollar. In relation to the costs of living and services, however, average costs and incomes are about double in America compared to Australia. Mr. A. has a wife and three children under 17 years of age. He takes out a maximum policy for both hospital and medical benefits. He pays 3s. (33 cents) each week for each of the hospital and medical benefits, totaling 66 cents weekly. This covers himself, his wife, and an unlimited number of children under 17, so that if his wife should have twins, his premium will not increase. If his wife consults a physician of her choice at his office, she will pay the physician 15 shillings ($1.66). She sends the receipted account (which reads "consultation 15s.") to the medical benefits fund. She receives a refund of 13s. 6d. from the fund, made up of 7s. 6d. from the fund, and 6s. from the government subsidy. If she is found to require an appendicectomy, she will go to a hospital of her choice where she will occupy a room at a cost of £14.14 per week. She stays in hospital two weeks. The account for her hospital room will be £29.8. Before she receives the account, however, it will have had 8s. per day deducted from it. This is a Commonwealth subsidy, which originated in 1946. It is paid directly to the hospital and the payment is made irrespective of whether the patient is a contributor to the medical benefits fund or not. This leaves a balance of £23.16 to be paid by Mrs. A. When she pays the account, she receives a certificate of hospitalization from the hospital, which she presents, with the receipted account, to the medical benefits fund. The fund repays £8.8 per week (£16.16) from its own resources, plus 4s. per day on behalf of the Commonwealth. This latter is a special extra benefit payable only to subscribers to the medical benefits organization. These two payments total £19.12, leaving a balance of £4.4 to be paid by Mrs. A. She will also receive an account from the hospital for operating room fees. There is no government subsidy for this but the medical benefits fund will repay £2.2 of this fee. The surgeon's fee will be about £17.17 for the operation and normal after-care. Mrs. A. will pay the account, which will state "Item 14 Appendicectomy." The receipted account will be sent to the medical benefits fund which will pay £9.7.6 from its own funds, and £5.12.6 on behalf of the government, totaling £15.15. The anesthetic fee will be similarly met on a basis of £1.17.6 from the fund and £1.2.6 from the government.

The public response to this scheme has been almost overwhelming, especially to the Medical Benefits Fund of Australia that is sponsored by the medical profession. The council of the British Medical Association has asked its members not to increase their fees until the scheme has been established for several years. This is to avoid political repercussions and embarrassment to the Liberal party in power that introduced the scheme. It will be remembered that the nationalized medical scheme which the Labor party endeavored to introduce in 1949 was a failure because of the refusal of the physicians to take part in it.

The Labor party today, therefore, is anxious to obtain political capital to discredit the present development, and that is why physicians are anxious to avoid any criticism of what they consider is the ideal solution to the problem of the cost of medical care.

No report of the Commonwealth Medical Benefits Scheme would be complete without a tribute to Sir Earle Page, the Minister for Health in the Commonwealth government, an outstanding surgeon, and a fellow of the Royal College of Surgeons, whose herculean efforts have been rewarded with the fruition of the final phase of this scheme of medical and hospital care.

ISRAEL

University Medical Library.—The circulating library for students opened at the Hebrew University-Hadassah Medical School some months ago contains 1,400 volumes, and additional gifts of books are frequently received. Most of the books have been presented by American-Jewish physicians, and a large collection has been sent by Dr. Louis Wolfson of Boston. The initiative in providing textbooks for the medical students was taken by the Phi Lambda Kappa medical fraternity of the United States, which is headed by Dr. Morton J. Robbins and Dr. M. M. Glazier. Many large American publishing firms have sent gift copies of their medical publications to the library. A collection of medical works presented by Dr. Walter Levy, a New Orleans surgeon, has been shipped to Israel by the Hadassah Chapter of that city, and part of this collection will be placed in the students' library. Sixty volumes on osteology have been presented by the Zionist Federation of South Africa. The opening of the lending library largely has solved the problem of providing medical students with necessary textbooks, which are very expensive.

American Students for the Medical School.—A limited number of students from the United States are to be admitted to the Hebrew University-Hadassah Medical School, according to a recent decision. The candidates must possess the same qualifications as are required by recognized American medical schools. The Jerusalem medical school will enroll candidates who have completed their premedical training in the United States, who have an adequate knowledge of Hebrew, and who have declared their intention of settling in Israel on completion of their studies.

Mass Immigration and Health Conditions.—In a review summarized in *Dapim Refuim*, May, 1953, Dr. Nassau reported on the "Mass Immigration and Health Conditions of the Old

Resident and New Population" in Israel. More than 200,000 children under 14, including 80,000 infants, have entered Israel during the great wave of immigration (1948-1952). The general health of the children of the resident population has not been affected by this immigration. No important damages of the general standard of nutrition have been observed. Among the children of the old residents, no deficiency diseases have been observed. The children of the new immigrants, on the other hand, suffered severe impairment, which was intensified because the health of some of them had already been damaged before or during their trip to Israel, as well as in the large immigrant camps. The rate of mortality at the pediatric wards increased threefold: 80 to 90% of the deceased children were new immigrants from the Middle East and Africa. The damages were in part due to (*a*) ignorance of proper child care and (*b*) the conditions under which the immigrants had to live, first in the immigrant camps and later in the transit camps.

The rate of childbirth is three times higher among immigrants from the Middle East than among the resident population. The Middle Eastern infants have no diseases due to the Rh factor, as the incidence of Rh-negative women from Yemen and Irak is very low (1 to 2%). The weight and body-length of these newborns is considerably less than of those in the resident population. The infant mortality rate rose among those of the transit camps in 1950 up to 15.7%; in 1951 it was still 8.2%, whereas the mortality in the cities was at the same period 3% and in the communal settlements 1.6%. The main causes of death among these infants were diseases originating from acute states of dystrophy. These dystrophies are again to be attributed to the ignorance of the mothers in questions of infant care and feeding. The infectious diseases that appeared most frequently at the transit camps were trachoma, favus, scabies, and infestation with lice. The children of the resident population were almost unaffected by these diseases. The number of new cases of schistosomiasis is (in spite of the great number of persons affected [20,000 to 30,000]) insignificant. A more serious problem, which also touches the children of the resident population, is the wide spread of worm infections.

Infectious diseases of the intestines such as typhoid, paratyphoid, and dysentery, affect almost exclusively new immigrants. Scarlet fever, acute hepatitis, and poliomyelitis were more frequently observed among the children of the old residents. There was a notable increase of diphtheria owing to the interruption of the vaccination during the period of the poliomyelitis epidemic. There are few cases of congenital syphilis. New cases of tuberculosis among the children of old residents and immigrants are rare. Only malaria, from which many of the newcomers are suffering, represents a latent danger to the resident population, though up to now there has been no increase in the number of new cases of malaria. Generally speaking, the mass immigration has not affected the general health of the resident population. The children of the newcomers have suffered severely owing to environmental conditions. Improvement of living conditions, teaching, and prophylaxis will make it possible to eliminate the still-existing dangers.

ITALY

Medical Days in Montecatini.—"Medical Days," organized by the management of the Montecatini Health Resort, were held in that city on May 16-17 for the sixth year. About 500 Italian internists and many guests from abroad were present. Prof. Cesare Frugoni, from the University of Rome and chief consulting physician of the resort, welcomed the guests and emphasized the importance that the Montecatini days are assuming in the cycle of Italian medical conventions. He then announced the topics to be discussed by two young Italian clinicians, Professor Cassano, director of the University of Pisa medical clinic, and Professor Coppo, director of the University of Modena medical clinic.

Since both topics dealt with factors that alter metabolism, Professor Frugoni pointed out the marked changes that modern life has produced in the diet of man, changes that disrupt his normal biochemistry and metabolism. To keep the metabolism normal, modern dietetics aims at a perfect balance between the caloric components (protein, lipids, and carbohydrates) and the noncaloric components (vitamins, water, and salts).

The numerous studies that have been made of the diet of the 2½ billion people of the world show that a large number of them have incongruous and poor diets; on the other hand, many persons eat more calories than they need, and they eat more food, especially lipid-containing foods, than they need.

Considering the damage that prolonged diet imbalances may produce, much of mankind is potentially ill from the standpoint of dietetics. Gillman's studies have clarified the ratio that exists between the frequency and the seriousness of liver alterations that occur in states of hyponutrition. The results of hypernutrition are just as severe, however, and among them are the steatosic alterations of the liver. These are today believed to play an essential part in development of cirrhosis of the liver that is due to disturbed nutrition.

Gastrocardiac Syndromes.—Professors Cassano, Tronchetti, and Bastieri discussed gastrocardiac syndromes. Professor Cassano said that every day it is common to observe some patients who complain of dyspeptic disturbances and who then are found to have heart disease. Cardiovascular disturbances that have their origin in the digestive system are common. The gastrocardiac syndromes seem to be closely related to a more general group of conditions related to the abdomen and the circulatory system, including syndromes involving the liver, gallbladder, and heart or the pancreas and the circulatory system. Careful examination of the morbid signs and diligent study of the physiopathological aspects, however, reveal that the gastrocardiac syndrome is quite distinct from the other syndromes involving the abdominal organs and the heart, even though there are many variants.

The gastrophrenic syndrome should not be classified as a gastrocardiac abnormality; it closely resembles the gastroanginal syndrome. Also the anginal syndrome caused by slight alimentary anaphylaxis should not be considered a gastrocardiac syndrome; the abdominal and cardiac distress in this illness is caused by hyposphyxia. The entire clinical picture, humoral and hemodynamic, can be reproduced by hypodermic injection of histamine in patients in whom liver disturbances resulted in an anaphylactic crisis with particular repercussions on the cardiovascular system.

A real gastrocardiac syndrome is present when a gastric alteration, that is, a true functional disturbance, can be demonstrated. The first manifestation of gastrocardiac abnormality is the hiatus syndrome in which an abdominal disturbance causes painful symptoms that can be related to the heart. The abnormally large hiatus and the consequent diaphragmatic hernia represent the abdominal source of conditions that affect the heart and the circulation.

Other gastrocardiac syndromes are closely related to aerophagy. The most typical aspect of this abnormality is the angor crisis of Roemheld's gastroanginal syndrome and its twin syndrome, paroxysmal tachycardia with gastric and respiratory complications (Rosenbach's syndrome). In both these syndromes there is a constant and typical critical change of the general hemodynamics, with fall of the systolic arterial pressure and especially the mean dynamic pressure and noticeable drop of the venous pressure.

The precordial sensation of constriction, the respiratory anguish, and the painful radiations create the sensation of angina pectoris in the patient. The physician has, therefore, the difficult task of recognizing the various aspects of the painful crisis and of distinguishing what is really anginal from what pertains to phrenic, gastric, and abdominal symptomatology. When the anginal nature of the pain has been recognized in the aerophagic patient, the functional character of these crises should be considered. Even though a favorable prognosis is made, it should always be remembered that distress, even functional distress, is always the expression of a phase of myocardial ischemia.

An animated discussion followed Professor Cassano's report. Professor Cassano emphasized that there is only one true angina. Then there are some painful thoracic syndromes, including the gastrophrenic syndromes. There are no false anginas. Lesions of the coronary arteries are common and may or may not become clinically apparent, depending on whether other neurovegetative and metabolic factors intervene.

He proposes the classification of the obscure forms of angina under the term "minor angina," meaning by this a minor coronary entity with a better prognosis than true angina.

Noninfectious Liver Diseases.—Professor Coppo, a clinician from Modena, reported on the etiology of noninfectious liver diseases. His aim was to summarize the latest concepts of the mechanism of onset of many liver diseases. In many points the report represented the results of experiments and clinical observations of the speaker and his associates. In most cases the pathogenesis of liver disease is complex; this report dealt mainly with the metabolism-altering factors.

Discussing liver disease due to blood stasis, the speaker distinguished simple liver congestion, liver congestion with frank dysfunctional syndrome and often manifest jaundice, and cirrhosis or sclerosis of the liver.

Liver diseases that are due to bile stasis are often associated with infection of the biliary pathways. The pathogenetic mechanism of cholestatic liver disease is very complex. The speaker believes that, in addition to the inflammatory and mechanical factors, the repercussions produced on the digestive system by the absence of bile in the small intestine should be taken into consideration.

Liver diseases caused by altered protein metabolism are mainly due to lack of proteins. Altered metabolism of proteins and amino acids is an important pathogenetic factor of common cirrhosis. Hepatic alterations entirely similar to those produced by lack of proteins have been observed in patients with pellagra. Primary and secondary amyloid liver diseases are also included in this group.

Among the liver diseases associated with an altered carbohydrate metabolism, the speaker distinguished diabetic liver abnormalities from abnormalities due to glycogenesis (Gierke's disease). This is accompanied by surplus of liver glycogen that is produced by an altered metabolism.

Liver diseases associated with disturbances of fat metabolism assume various characteristics, depending on whether the steatosis and the accumulation of fats in the liver take place when there is a generalized lipidosis or when only the liver becomes filled with fats. In many cases, according to the speaker, liver steatosis constitutes one phase of the cirrhogenous evolution of the liver.

The speaker discussed also liver diseases associated with conditions caused by a deficiency of vitamins or hormones, those due to allergy and exogenous toxic factors, those of splenic origin, and those that develop during pregnancy. The hypothalamus seems to play an important role in liver diseases associated with nervous lesions; these are rare syndromes but they have great importance.

LONDON

Tuberculosis in Shoemakers.—A mass radiography survey of factory workers in Northamptonshire, the center of the shoemaking industry in Great Britain, revealed in 1947 a disturbingly high incidence of pulmonary tuberculosis in boot and shoe factories. Mortality figures indicated that the death rate for pulmonary tuberculosis was higher among "boot and shoe factory operatives" than among "makers and repairers" (nonfactory workers). These findings led to an intensive investigation, the results and implications of which are reviewed by Dr. Alice Stewart of the social medicine unit of the University of Oxford (*Brit. J. Tuberc.* **47**:122, 1953). The results can be summarized as follows: The relative excess of tuberculosis in the boot and shoe industry as a whole is due to the presence of an exceptionally large number of tuberculosis carriers in the working population. The unequal distribution of cases within the industry is due to the fact that in large workshops the spread of infection from carriers to fellow-workers is greater than in small ones. Since, for men, shoemaking is a relatively light occupation, it attracts more persons with established tuberculosis than most industries and allows them to remain at work much longer than if the work were really strenuous. Provided the men with chronic tuberculosis work on their own, as do most shoe repairers, no communal harm is done, but if, as is the case of boot and shoe factory workers, they work in large groups, the disease is spread to others. To account for the opposite trends of mortality among shoemakers and printers, it is "postulated that the migration of operatives from cottage workshops to factories, which is a feature of every industrial revolution, is liable to provoke a relatively slow rise in the tuberculosis death rate followed by a subsequent fall (i. e., a slow-motion epidemic). Provided, therefore, there is in any trade a nucleus of carriers, the date of its industrial revolution determines whether its tuberculosis death rate, relative to the national rate, is rising, falling or remaining stationary." In the shoemaking industry the factory system developed relatively late (1900-1914). From the data collected in this investigation it is suggested that, for every 10 boot and shoe operatives who contracted pulmonary tuberculosis from a relative, there were 18 to 20 who probably contracted it from a fellow-worker, and that for a shoemaker working in a room with about 200 other workers the risk of contracting tuberculosis is over three times as great as for a shoemaker working on his own.

Among the implications of this investigation, stress is laid on the fact that "spread of tuberculosis in factories is a greater menace to the community than spread in the home. . . . If the 'pressure head' of infection really lies in the factories, then our present policy of encouraging tuberculous subjects to return to industry as soon as they are fit is wrong and should be replaced by one in which tuberculous persons, while given every other consideration, are forbidden to mix with other factory workers. . . . In fact the only social remedy that could be relied upon to free the factories from infection would be 'a modified form of sanatorium treatment' for all tuberculous workers." Finally, it is stated that none of the studies described in this report "supports the view that shoemaking should be scheduled as a 'dangerous' occupation."

The Present Status of Cancer Research.—The present status of cancer research was recently reviewed by Prof. Alexander Haddow, director of the Chester Beatty Research Institute, Royal Cancer Hospital, in moving the adoption of the annual report at the 30th annual meeting of the British Empire Cancer Campaign. Until recently, little or nothing was known of the mode of action of carcinogenic agents. Lately, increased attention has been given to the biochemical action of these agents, and for the first time "in the case of certain cancer cells we have now recognized the imprint left upon them by the chemical agents which induced their appearance." The field of interest is being widened and now includes studies of the colloidal and molecular organization of the chromosomes. "Although we are not finally sure, it appears that the end result of such interference [i. e. with the chromosomes] may be a genetical and enzymatic deficiency—in other words, that the cancer cell is derived from the normal cell through the loss of enzyme or ferment systems normally responsible for growth regulation. While much remains to be done, I would hazard the prediction that sooner or later, depending on our efforts, we shall see in the chemotherapy of cancer something entirely new, namely a kind of substitution therapy by which the cancer cell will be controlled from without, by the same kind of chemical means in virtue of which the normal cell automatically regulates itself from within. While we cannot penetrate the future, the prospects have sensibly changed, and even cancer prevention, which only a few years ago seemed utterly beyond our hopes may yet prove to be within our ultimate powers."

He suggested that the history of cancer research may well resolve itself into three main phases: (1) the impartial exploration of every avenue of attack; (2) the definition and limitation of those few approaches that are decisive in strategy; and (3) a phase of conscious development. We may shortly be moving from the first of these phases to the second. "If the third phase is still beyond our ken, it may not elude us so very long. Although many biological paradoxes and puzzles have still to be solved, and many fantastic difficulties have yet to be overcome, the great fundamental principles, almost certainly of startling simplicity, are sure to emerge. It is then that we shall enter the phase of development." When this phase comes, "It will very likely partake of the nature of biological engineering on a vast scale, and may demand vast expenditures far in excess of those we have hitherto disposed of." His final summing up was, "More than half-way through the twentieth century, after fifty years of cancer research in its modern sense, and after thirty years of concerted and ever-intensifying effort by the Campaign, it seems we are now at last approaching 'the end of the beginning'."

General Practitioners and Cancer Propaganda.—Earlier this year the British Empire Cancer Campaign sent a one-question questionnaire to every general practitioner in the United Kingdom: "Do you consider that the launching of a scheme of lay educational propaganda on cancer (by pamphlet, lectures, films, etc.) would be of assistance in securing the earlier diagnosis of cancer and thereby improving the chances of a cure?" To the 21,040 letters sent out, 5,053 replies were received, i. e., a 24% response. Of the replies, 2,148 were an unqualified "yes" and 2,683 an unqualified "no." In view of this strong element of objection among general practitioners to such propaganda, the campaign has decided to take no further action at the moment.

MEXICO

Tenth Anniversary of Children's Hospital in Mexico City.—In April, 1953, several functions commemorated the 10th anniversary of the Children's Hospital in Mexico City. In a public ceremony the founders of the hospital, former President Avila Camacho, former Secretary of Public Assistance, Dr. Baz, and former Undersecretary of Public Assistance, Dr. Zubirán, were honored. In the following days there were a pediatric meeting, a scientific exhibition, and a popular exhibition for medical education purposes.

At the pediatric meeting, which was attended by 458 physicians from all the states of Mexico and from abroad, there were general communications, roundtable discussions, and several seminars. The general communications presented the experience of the hospital in its first 10 years of life. Among the subjects discussed, the nutritional problems, the infectious diarrhea of children, and the acute abdominal conditions of infancy aroused the most interest. The scientific exhibition, which was also presented by the staff of the hospital, had 45 booths, each dedicated to illustration of the problems that are of most importance to pediatricians and general practitioners.

The popular exhibit was visited daily by an average of 12,000 persons. There were 60 booths, in many of which special lecturers explained to the general public different aspects of the care of children. Many booklets were distributed without charge.

Acute Abdominal Conditions in Infantile Diarrhea.—At the meeting on pediatrics, commemorating the 10th anniversary of the Children's Hospital, Drs. Carlos Sariñana, Joaquín de la Torre, and Arturo Fonseca, from the departments of surgery and medicine, reported their experience with 33 patients under 2 years of age who had an acute abdominal condition following an attack of diarrhea. Twenty-three (69.5%) were under one year of age, the youngest being only 13 days old. The diarrhea was considered severe in 79% of the cases, and in 76% blood was found in the stools; it appeared during the second week in almost half of the cases.

In every case there was abdominal distention and vomiting. In only one-third of the cases was intense spasm found, and in 80% constipation appeared together with the acute abdominal symptoms. The most frequent complication was bronchopneumonia, which was present in 45% of the cases. Stool cultures were done on 20 patients, with positive results in 11. Organisms of the colon and paracolon group were isolated in six, including coli 3 Kauffman in one, Shigella flexneri in two, Proteus morganii in one, Pseudomona aeruginosa in one, and Salmonella typhi and Endamoeba histolytica in one. Roentgenograms of the abdomen showed dilated loops, fluid levels, and thickened intestinal walls. In cases of perforation free air was found in the subdiaphragmatic space.

Twenty-four of the patients were operated on, with 22 deaths. All of the nine patients not operated upon died. Treatment consisted of use of antibiotics, correction of fluid and electrolyte balance, and administration of blood and plasma.

Autopsy was done in 15 cases, and in 10 more the resected small intestine was studied histologically. In the rest, diagnosis was based on the operative findings. Different types of lesions that caused the acute abdominal symptoms were found at the time of laparotomy or autopsy. These were classified by the authors as follows: 1. Echymotic or necrotic lesions, with circumscribed zones of infarction or pinpoint hemorrhages. The most frequent site was the ileum, followed by the jejunum or colon. In only one case were lesions found in the stomach and duodenum. Some areas were perforated, with evident peritonitis. 2. Extensive zones of intestinal infarction, usually located in the ileum. Thrombosis of the mesenteric vessels proved to be the cause of the infarct in two of these patients. 3. Ulcerations of the small or large bowel of variable depth, and perforation secondary to such ulcerations. 4. Zones of intestinal pneumatosis, usually located in the ileum. 5. Bloody or purulent fluid in the abdominal cavity, found in all of the patients.

The pathology department reported the following findings in the intestine: 1. Edema, congestion, necrotic areas, and in some cases hemorrhages of the mucosa and submucosa. In others, the mucosa had disappeared completely and was replaced by granulation tissue. 2. Round cell or plasma cell infiltration of one or several layers. Sometimes edema and hemorrhage of the serosa and subserosa, with deposits of fibrin and leukocytes, were found. In others, there was complete autolysis with perforation. Peritonitis and mesenteric adenitis were described, as well as alterations in other organs. This, together with the results of the bacteriological studies showing different micro-organisms, led to the conclusion that, in some cases, peritonitis was a manifestation of a septicemia of intestinal origin.

The most important comments referred to the differential diagnosis between truly acute conditions of the abdomen and conditions due to paralytic ileus. The etiology and pathology of the disease are not completely understood, but the authors believe that infection, malnutrition, and increased intra-abdominal pressure are contributing factors in the majority of cases. The surgical procedure most frequently used was the resection of the affected part, with enterostomy.

Medical Meeting at San Luis Potosí.—At the central city of San Luis Potosí, from April 28 to May 2 this year, a regional medical meeting was attended by physicians from all the neighboring states and from Mexico City. Medical meetings like this, called "cycles of medical days," have been held since 1940 and the last one was the fifth. They are sponsored by the University of the State of San Luis Potosí and the Central Hospital and the Society for Medical Studies of the city of San Luis Potosí.

The committee that organized this meeting consisted of Dr. J. M. Torre, Dr. J. E. Sanchez, and Dr. E. Anaya, as president, secretary, and treasurer respectively; all of them are members of the faculty of the university and of the staff of the Central Hospital.

The meeting consisted of (*a*) general communications and symposiums, (*b*) clinicopathological conferences, (*c*) special sections, and (*d*) medical motion pictures. The general communications were presented by members of the major hospitals of Mexico City. They concerned surgery of the mitral valve, by Drs. Chavez, Robles, and Mendoza, from the Instituto de Cardiología; portal hypertension, by Drs. Sepulveda, Villalobos, Rojas, Falomir, Muñoz, and Quijano from the Hospital de Enfermedades de la Nutrición; tumors of children, by Drs. Salas and Contreras from the Hospital Infantil; and endocrine problems in gynecology, by Drs. Alvarez-Bravo, Arzac, and Gómez-Mont.

The section meetings were on endocrinology, cardiology, cancerology, and anesthesiology. Thirty-seven papers were read in all. The clinicopathological reports were presented by members of the local hospital and discussed by the guests. In addition there were clinical rounds, surgical demonstrations, and exhibits of different kinds. The general consensus was that this meeting was very successful and that the comparison of the experience of the local physicians with that of physicians from other cities was very useful.

CORRESPONDENCE

EXPEDITION TO SOUTH AMERICA

To the Editor:—I would like to place before your readers details of a project that might interest them. An expedition has been planned for late this fall. The members of the expedition will drive two sports cars, towing small trailers, down the Pan-American Highway to Rio de Janeiro. We hope to complete the journey entirely under the power of the cars, and, as many readers of THE JOURNAL may know, this is a pioneering venture.

There are three of us at present, an American who is a graduate of Massachusetts Institute of Technology, with motor engineering experience, and two Englishmen who both are Oxford graduates, with some years in the United States, and one who has a master's degree in business administration from Harvard. We need a fourth man to complete the group. As the fourth man we want to recruit a young American medical graduate, preferably with some experience in the tropics. Expenses will be shared but will be low, since the expedition is receiving financial support in return for a photographic record of the journey. Time will be available for study en route so this expedition might be an opportunity that some reader would like to hear about. Further details may be obtained by writing to P. O. Box 1610, Grand Central Station, New York 17.

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OBSTRUCTION DUE TO SERUTAN

To the Editor:—Several cases have been reported in which esophageal obstruction resulted from the use of one of the hygroscopic bulk laxatives. In every instance some of the ingested material lodged in the esophagus and formed a tenacious, sticky mass. An additional case seems worth describing, not only as a further warning concerning the use of such laxatives but, particularly, as a report of the prompt response to a method of treatment that, as far as I know, has not previously been tried.

A 72-year-old white man was admitted to the North Carolina Baptist Hospital at 4 p. m. on April 7, 1953, because of an obstruction in the esophagus. For years he had been in the habit of taking Serutan. The manufacturer of Serutan states that it is a hydrogel obtained from Plantago ovata and extracted from sugar beets from which the roughage has been removed. At 10 p. m. on the night before admission the man put 2 teaspoonfuls of Serutan in a glass of water and swallowed the contents of the glass before allowing the powder to dissolve. In a few minutes, he experienced a painful, burning sensation when he attempted to swallow and found that he could not drink a glass of water. Throughout the night he vomited and coughed up what he described as "thick clots of mucus." A physician who was called at 6:30 a. m. gave him an intramuscular injection of 130 mg. (2 grains) of sodium phenobarbital in oil. This made him drowsy, but did not relieve the obstruction. Physical examination at the time of admission was noncontributory. Roentgen examination was not attempted because of the possibility that the barium might add to the obstruction. Since Serutan is a carbohydrate material, it was thought that a starch digestant might dissolve the mass; hence the patient was given 8 cc. of liquid Taka-diastase in half a glass of water, to be sipped slowly. Before the first dose had been completed, the patient said that he felt "the lump melting away" and found that he could swallow without effort. The next morning (April 8) he was able to take a bland meal without difficulty, and he was discharged that afternoon. He made an uninterrupted recovery.

A fluoroscopic examination of the esophagus, with a barium swallow, was made a week later, on April 14. The examiner reported "no obstruction to the flow of barium through the esophagus. . . . There was on deep inspiration a very minimal degree of hiatus insufficiency."

The rapid relief obtained from the liquid Taka-diastase, after more than 20 hours of obstructive symptoms, justifies the supposition that it was effective in liquefying the obstructing mass. Certainly it seems to be worthy of further trial in cases in which esophageal obstruction follows the ingestion of a hygroscopic laxative. Taka-diastase should be used before barium is given since the barium would add to the size of the mass in the esophagus and would also act as a mechanical barrier between the starchy material and the starch digestant.

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REMOVAL OF SKIN SUTURES

To the Editor:—I enjoyed the article on removal of skin sutures by Weinstein and Roberts in THE JOURNAL, July 25, 1953, page *1231*. Dr. Daniel L. Borden introduced a similar traction loop into the suture which he reported in the *American Journal of Surgery* (73:100, 1947). I have added one more step. I leave the end of the interrupted sutures long and tie the long ends together, or I use a split buckshot in place of the knot so that all stitches can be removed at once. This saves digging around for each stitch and makes it less likely that a stitch will be missed because the light is poor at the bedside, tissue swelling is present, or the area is inaccessible.

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To the Editor:—After reading the article "Easy Removal of Skin Sutures," by Drs. Weinstein and Roberts (*J. A. M. A.* [July 25] 1953) we agree with the authors that their suture lift is a valuable method for removing skin sutures. We have found, however, that it is easier to use the eye end of the needle in inserting the lift. This blunt end slips under the stitch easily without piercing the skin. We also tie the loose end of the first knot to the loose end of the last knot so that the suture lift can be easily identified. With these two additions to the technique, we have found the time necessary for insertion of the lift markedly reduced.

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To the Editor:—In THE JOURNAL for July 25, 1953, page 1231, Weinstein and Roberts describe an easy method of removal of skin sutures. A practically identical method was described by A. P. Hovnanian in *Plastic and Reconstructive Surgery* (8:407 [Nov.] 1951). I have used this method myself during the past year and a half and find it very satisfactory.

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To the Editor:—In reference to "Easy Removal of Skin Sutures" (*J. A. M. A.* **152**:1231 [July 25] 1953), a very similar method for skin suture removal was described in 1951. The reference is "A Simple Technic for Removal of Fine Interrupted Skin Sutures" (Hovnanian, A. P.: *Plast. & Reconstruct. Surg.* 8:407, 1951).

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COUNCIL ON MEDICAL SERVICE

RATING COMMUNITIES

During the past two summers the Council's Committee on Extension of Hospitals and Other Facilities[1] has been making a study of physicians placement activities in a number of states. In these studies the Committee arranged for field visits to various small communities in each state, some of which had obtained a physician recently and others of which had requested a physician but had been unable to attract one. In communities that had been successful in obtaining a physician, questions were asked of the physician and his wife designed to learn why he had located there rather than in some other community in the state. In communities where a physician had not been obtained, an effort was made to learn why the community had been unsuccessful in its efforts to attract a physician.

As a result of the first series of field visits, a list was compiled showing (*a*) the major factors related to a community's need for a physician and (*b*) the primary characteristics determining a community's attractiveness to a physician. The various categories were then assigned a relative importance numerically and an A, B, C scale set up to record point totals. From this it was theoretically possible, on the basis of adequate knowledge, to assign a community an A, B, or C priority rating that would relate to its need for physician as well as its ability to attract one.

This medical priority rating program was then ready for testing in the field. This was done in a second series of field visits to small communities. After talks with physicians in these communities, particularly those who had recently established their practices, and after interviews with community leaders in those places that were still searching for a physician, the data gathered were applied to the priority program and a rating assigned to each community. This rating was then checked against the opinion of the executive secretary of a state medical society or some other qualified person familiar with the medical needs and resources of that community. In nearly every case the evaluation given by one with firsthand knowledge concerning the location coincided with the rating shown by the priority plan.

By means of such testing several revisions were made in the plan. The revised categories and the points assigned to them were reviewed by the Committee on Extension of Hospitals and Other Facilities and the Council on Medical Service and the priority rating program as approved by them is published here for review by physicians and others interested in placement problems.

A MEDICAL PRIORITY RATING PROGRAM

This Medical Priority Rating Program has been prepared and is submitted to the state medical associations with full knowledge of the many differences between states. However, the criteria on which a physician bases his appraisal of the desirability and medical need of a community are sufficiently uniform to permit their adaptation to any state. In such adaptation, the points assigned to items may be increased or decreased to conform to local conditions without altering the basic concept.

Encouraging the state associations to use this program in the operation of their placement service is admittedly an experimental step. At the same time it may well serve several purposes: (1) to stimulate communities to analyze their characteristics and facilities from a physician's viewpoint; (2) to encourage state associations in the collection of a certain minimum amount of information on each opening, and (3) to supply the A. M. A. with a valuable differentiation among the communities in the United States listed as needing a physician.

Objectives

- I. To determine where a need for a physician actually exists and estimate the degree of that need
- II. To evaluate the medical desirability of a given location
- III. To assist communities in improving their medical desirability rating
- IV. To guide physicians in their choice of locations

Need Priority—From the Standpoint of the Community

A..............60 to 105 points
B..............30 to 60 points
C.............. 0 to 30 points

Calculation To Be Based on:

1. Doctor-population ratio
   - 1 active to 1,200 population and under.... 0 points
   - 1 active to 1,200 to 2,000 population......20 points
   - No M.D. or 1 active to 2,000 population and over ....30 points
2. Distance to nearest adequate medical care
   - Within trade area...................... 0 points
   - Inadequate, or not within trade area........25 points
   - (Considered inadequate if 20 or more points are recorded for number 1)
3. Age of physicians serving the area
   - Under 45 years of age.................... 0 points
   - 45 to 60 years of age....................10 points
   - No M.D., one over 60 years of age, or one in limited practice....................35 points
   - (Example: Doctor #1 50 years..10 points
     Doctor #2 33 years.. 0 points
     Average.......... 5 points)
4. Intangible factors ....0 to 15 points
   - A. Need as seen by the inhabitants of the community
   - B. Their willingness to accept the situation
   - C. Any factors which may increase or decrease the need picture as drawn by the above categories

Desirability Priority—From the Standpoint of Physician

A..............70 to 105 points
B..............40 to 70 points
C..............under 40 points

Calculations To Be Based on:

1. Hospital facilities
   - Located in community...................30 points
   - Reasonably accessible to physicians........15 points
   - Not reasonably accessible................ 0 points
2. Office facilities offered by the community
   - Adequate space and equipment offered at low rent or rent free for a given period......25 points
   - Adequate space, no equipment, with rent....20 points
   - No facilities or inadequate ones........... 0 points
3. Opportunity for assured income as health officer, care of the indigent, industrial accounts, etc.
   - Yes ....15 points
   - No .... 0 points
4. Facilities for family life................0 to 25 points
   - If excellent, allow...............25 points
   - If good, allow...................15 points
   - If poor, allow.................. 0 points
     - A. Housing ....0 to 25 points
     - B. Schools ....0 to 25 points
     - C. Churches ....0 to 25 points
     - D. Social opportunities, including golf clubs, fraternal organizations, other professional men in the community, women's organizations ....0 to 25 points
     - A + B + C + D ÷ 4..Average:——
5. Intangible factors ....10 points
   - A. Availability of diagnostic service, consultation and postgraduate education
   - B. Ambulance and nursing service available
   - C. Possibility of time off for vacations and special causes
   - D. Proximity to a large medical center
   - E. Other factors contributing to medical desirability

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[1] The Committee members are Ralph A. Johnson, M.D., Chairman, Detroit; Elmer Hess, M.D., Erie, Pa.; Walter E. Vest, M.D., Huntington, W. Va.; E. Dwight Barnett, M.D., New York; John W. Cline, M.D., San Francisco; Cleon A. Nafe, M.D., Indianapolis, and Willard A. Wright, M.D., Williston, N. D.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Ind. Hyg. & Occupat. Med., Chicago

7:455-546 (June) 1953

Effect of Modifications of Surface of Quartz on Its Fibrogenic Properties in Lungs of Rats: 1. Quartz Leached with Ringer's Solution. 2. Quartz Etched with Hydrofluoric Acid. 3. Quartz Coated with Coal Extract. E. J. King, G. P. Mohanty, C. V. Harrison and G. Nagelschmidt. —p. 455.
Acute Toxicity of Mineral Dusts. J. C. Dale and E. J. King.—p. 478.
Adsorption of Dyes, Amino Acids, Proteins, and Metal Hydroxides on Quartz. J. C. Dale and E. J. King.—p. 484.
Field Equipment for Collection and Evaluation of Toxic and Radioactive Contaminants. W. B. Harris, H. D. LeVine and M. Eisenbud. —p. 490.
Spectrochemical Analysis of Beryllium in Biological Tissue. J. Y. Ellenburg and L. E. Owen.—p. 503.
Radon Inhalation Studies in Rats. S. H. Cohn, R. K. Skow and J. K. Gong.—p. 508.
Hyperthermic and Pathologic Effects of Electromagnetic Radiation (350 Mc.). J. E. Boysen.—p. 516.
Acute Narcotic Effects of Monochloromonobromomethane Vapor in Rats. C. C. Comstock, R. W. Fogleman and F. W. Oberst.—p. 526.
Control of Environment in Prevention of Industrial Accidents. B. H. Harvey.—p. 529.

A.M.A. Arch. Internal Medicine, Chicago

91:695-824 (June) 1953

Insulin Reactions: Manifestations and Need for Recognition of Long-Acting Insulin Reactions. R. K. Maddock and L. P. Krall.—p. 695.
Syndrome of Myelofibrosis: Report of Eight Cases. J. E. Cook, J. W. Franklin, H. E. Hamilton and W. M. Fowler.—p. 704.
Clinical Method for Measuring Capillary Blood Pressure and Its Application in Hypertension. E. Davis —p. 715.
Tolerance to Nasogastric Tube Feedings: Comparative Clinical Study of Two Dietary Formulas. E. B. Smith, E. E. Wollaeger and S. M. Victor. —p. 721.
**Needle Liver Biopsy in Thyrotoxicosis.* E. R. Movitt, B. Gerstl and A. E. Davis.—p. 729.
Clinical Studies in Geriatrics: I. Serum Lipid Partitions. J. Pomeranze, L. J. Boyd and A. A. Goldbloom.—p. 740.
*Idiopathic Ulcerative Colitis: Giant Ulceration Following Corticotropin (ACTH) and Cortisone Therapy. E. C. Texter Jr., C. W. Legerton Jr., J. M. Ruffin and others.—p. 744.
Diagnostic Importance of Café-au-Lait Spot in Neurofibromatosis. F. W. Crowe and W. J. Schull.—p. 758.
Studies on the Aging Heart: The "Normal" Heart in Old Age—Study Based on Analysis of 800 Autopsies. H. Poliakoff and P. Kaufman. —p. 707.
Treatment of Central Nervous System Cryptococcosis: Laboratory Studies. C. A. Carton and C. S. Liebig.—p. 773.
Successful Corticotropin (ACTH) Therapy of Whipple's Disease Refractory to Cortisone. K. Plummer, B. B. Wesiger III and C. M. Caravati. —p. 784.
*Vitamin E and Climacteric Syndrome: Failure of Effective Control as Measured by Menopausal Index. M. H. G. Blatt, H. Wiesbader and H. S. Kupperman.—p. 792.

Needle Liver Biopsy in *Thyrotoxicosis.*—*Biopsy specimens of the liver were obtained with the Vim-Silverman needle in 13 patients with thyrotoxicosis. The anatomical material thus obtained was correlated with the results of hepatic function tests, including the determination of the serum bilirubin, serum gamma globulin, serum proteins with albumin-globulin ratio, cephalin cholesterol flocculation, thymol turbidity, sulfobromophthalein dye excretion, and plasma prothrombin. The authors found that the functional capacity of the liver in thyrotoxicosis is hardly affected or is affected only to a very slight extent and that pathological changes in the liver in this condition are slight except for vacuolization of liver cell nuclei. They believe that the discrepancy between their own observations and those of other investigators, who observed severe anatomical changes in the liver of patients with thyrotoxicosis is due to the fact that the previous authors made their observations on autopsy material exclusively.

Ulcerative Colitis: Giant Ulceration Following Corticoid Therapy.—These observations were made on 14 patients with a severe or fulminating ulcerative colitis who were treated with intravenous administration of corticotropin at the Duke Hospital and on one other patient treated elsewhere. The clinical course of the disease prior to the treatment was classified as fulminating in 11 and as severe in four. Fourteen patients received daily intravenous infusions of 20 units of corticotropin for approximately 12-hour periods for from 4 to 17 days. Twenty courses were given to the 14 patients. Three patients also received corticotropin intramuscularly (80 units per day) for periods of 5 to 13 days, and one patient was treated with corticotropin gel (40 to 80 mg. per day) for a 16 day period prior to intravenous therapy. Cortisone was taken by four of the patients either before or after the course of corticotropin. Antibiotics were administered concurrently. Sustained improvement resulted in eight of the patients subjected to corticoid therapy, while the remaining seven either had only temporary improvement or became worse. Perforation of the colon developed in one patient, and large undermined ulcers developed in four patients who subsequently underwent colectomy. The colectomy specimens showed longitudinal undermined ulcers unaccompanied by significant fibrosis or mucosal regeneration. The sigmoidoscopic appearance of these ulcers and the accompanying roentgenologic changes were distinctly different from what is usually seen in cases of idiopathic ulcerative colitis in which corticoid therapy is not given. Corticotropin and cortisone appear to alter the course of idiopathic ulcerative colitis. Since submission of this paper the authors followed an additional patient, who was observed to have huge linear ulcers, one of which perforated, transecting the entire length of the transverse colon, following intravenous therapy with corticotropin. At autopsy the anterior abdominal wall was adherent to a large open segment of the transverse colon, 27 cm. in length and 5 cm. in width. The anterior wall of the transverse colon appeared to be completely destroyed by the ulcerative process. There was also a localized abscess associated with perforation of the cecum and ascending colon. The remaining colon showed huge, linear ulcers, surrounded by considerable mononuclear inflammatory reaction.

Vitamin E and the Climacteric Syndrome.—Blatt and associates attempted to evaluate the effectiveness of alpha tocopherol therapy in women with menopausal symptoms with the aid of the menopausal index, which gives numerical values to the commonest menopausal symptoms. While in an earlier report the authors employed a menopausal index including 11 symptoms, they now consider only the four most important symptoms, namely, vasomotor symptoms, nervousness, insomnia, and paresthesia. The effect of vitamin E was compared to the effect of two standard estrogens, ethinyl estradiol and conjugated estrogenic substances (equine). In addition, phenobarbital and placebos were used throughout the study, which extended over three years. Vitamin E administered in the form of 50 to 100 mg. of alpha tocopherol acetate a day was no more active than a placebo in the control of menopausal symptoms and proved to be effective in only 25.6% of 82 patients. Placebo therapy proved effective in 33% of 298 patients. Phenobarbital was therapeutically successful in 42.8% of 88 climacteric patients. Ethinyl estradiol, 0.05 mg. a day, and conjugated estrogenic substances (equine), 1.25

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Titles marked with an asterisk (*) are abstracted.

mg. a day, were comparable in activity and adequately controlled menopausal symptoms in 92.6% and 90.8% of 107 and 173 patients respectively. This failure of vitamin E to exert a therapeutic effect corresponds with its failure to show pharmacological activity experimentally in the absence of vitamin E deficiency.

A.M.A. Arch. Ophthalmology, Chicago

49:591-714 (June) 1953

Geniculocalcarine Injuries in War Casualties. N. S. Jaffe and L. S. Durkin.—p. 591.
Bilateral Endophthalmitis Phacoanaphylactica: Pathologic Study of Lesion in Eye First Involved and, in One Instance, the Secondarily Implicated, or "Sympathizing," Eye. J. A. deVeer.—p. 607.
Local Scleral Necrosis: Late Sequel of Irradiation. I. S. Jones and A. B. Reese.—p. 633.
Perimetry with Ultraviolet (Black) Radiation and Luminescent Test Objects: Preliminary Report. D. O. Harrington.—p. 637.
Ophthalmoplegic Migraine: Pathogenesis; Report of Pathological Findings in Case of Recurrent Oculomotor Paralysis. D. O. Harrington and M. Flocks.—p. 643.
Functional Evaluation of Pupillary Light Reflex Pathways: Experimental Pupillographic Studies in Cats. O. Lowenstein, S. B. Murphy and I. E. Loewenfeld.—p. 656.
Fibrinoid Degeneration of Tarsal Conjunctiva. W. Kornblueth, A. Laufer, E. Loebel and M. Frisher.—p. 671.
Diseases of Retina. A. E. Maumenee.—p. 675.

A.M.A. Arch. Pathology, Chicago

55:443-530 (June) 1953

*Lesions of Pancreas in Malignant Hypertension: Review of 100 Cases at Necropsy. G. T. Hranilovich and A. H. Baggenstoss.—p. 443.
Pathology of Mumps Virus Meningoencephalitis in Mice and Hamsters. J. R. Overman, J. H. Peers and L. Kilham.—p. 457.
Experimental Induction of Iron Overload in Rat: I. Morphological Alterations Due to Dietary Siderosis. J. P. Wyatt and J. Howell. —p. 466.
Vascularity of Early Subcutaneous Nodule of Rheumatoid Arthritis. L. Sokoloff, R. T. McCluskey and J. J. Bunim.—p. 475.
Relation of Glycogen, Phosphorylase, and Ground Substance to Calcification of Bone. J. D. Cobb.—p. 496.
Effect of High Pyridoxine Intake in Cholesterol-Fed Chicks. W. McFarland.—p. 503.
Effects of Anterior Hypophysis on Mammary Glands and Adrenals. *R. Silberberg, M. Silberberg and M. Opdyke.—p. 506.*
Mechanism of Softening of Tubercles: II. Behavior of Desoxyribonuclease in Tubercles Developing in Lungs of Rabbits. C. Weiss and F. M. Singer.—p. 516.

Lesions of Pancreas in Malignant Hypertension.—Hranilovich and Baggenstoss of the Mayo Clinic say that in a previous study of dilatation of pancreatic acini in patients who died of uremia, they were impressed by the high incidence of other parenchymal lesions in cases in which uremia was the result of nephrosclerosis. Since the parenchymal lesions in cases of nephrosclerosis were usually associated with a severe degree of arteriolosclerosis, it was surmised that most of the parenchymal lesions were the result of vascular changes and could be interpreted as infarcts. This study endeavors to elucidate the relationship between the vascular changes and the various parenchymal lesions. Records of 100 cases of malignant hypertension observed between 1924 and 1948 in which necropsies were performed were obtained from the files of the Mayo Clinic. The clinical charts were abstracted for data referable to age, sex, onset, duration and degree of hypertension; symptoms referable to cerebrospinal, cardiovascular, and renal systems; alterations in chemical constituents of blood and other body fluids, and type of death. The necropsy protocols furnished data concerning weights of the hearts and kidneys and changes in other organs. Gross descriptions of the pancreas were studied in every case. The routine sections of the pancreas were reviewed. The controls consisted of 100 cases in which the sex and the age distribution by decades of life were essentially the same as those in the cases of malignant hypertension. Clinical charts, correspondence, and necropsy protocols in the control cases were used to rule out hypertension and congenital or acquired cardiac disease. Moderate to severe arteriolosclerosis occurred in 68, infarcts of the pancreas were found in 7 cases, focal parenchymal necrosis in 21 cases, and foci of atrophy in 73 of the 100 cases of malignant hypertension. Vascular alterations were the most important factor in the production of parenchymal lesions such as infarction, focal parenchymal necrosis, atrophy, and fibrosis. Although arterial thrombosis could be demonstrated in 6 of the 7 cases of pancreatic infarction, it could not be demonstrated in any of the 21 cases in which parenchymal necrosis was observed. It is probable that congestive cardiac failure and shock may be important factors in the production of parenchymal necrosis in the presence of a severe arteriolosclerosis. Arteriolosclerosis of the pancreas is strongly indicative of, but not pathognomonic for, malignant hypertension. Vascular factors by themselves are not important etiological factors in acute hemorrhagic pancreatitis.

American Heart Journal, St. Louis

45:795-948 (June) 1953

Excretion of Sodium-Retaining Substances in Patients with Congestive Heart Failure. B. Singer and J. Wener.—p. 795.
Effect of Edema and Dietary Sodium on Efficacy of Sodium Removal by Cation Exchange Resin. L. E. Duncan Jr.—p. 802.
Determination of Oxygenation of Blood in Vitro by Using Reflected Light. F. A. Rodrigo.—p. 809.
Techniques for Facilitating Quantitative Analysis of Spatial Vectorcardiograms. G. H. Whipple.—p. 823.
Simplified Method for Determining Angle Between Two Spatial Vectors. R. A. Helm and N. O. Fowler Jr.—p. 835.
Spatial Vector Analysis of Early Right Ventricular Preponderance. J. C. Dahl and E. Simonson.—p. 841.
Effect of Lithium Chloride on Electrocardiogram of Isolated Perfused Heart. W. A. Butcher, K. G. Wakim, H. E. Essex and H. B. Burchell. —p. 855.
Further Observations on "Sustained" Hypertension in Rat. S. M. Friedman, M. Nakashima and C. L. Friedman.—p. 864.
*Functional Evaluation of an Internal Mammary Coronary Artery Anastomosis. A. Vineberg and D. Miller.—p. 873.
Valvular Stenosis as Cause of Death in Surgically Treated Coarctation of Aorta. G. Jacobson, R. S. Cosby, G. C. Griffith and B. W. Meyer. —p. 889.
Ventricular Standstill During Intravenous Procaine Amide Treatment of Ventricular Tachycardia. M. A. Epstein.—p. 898.
Action of New Oral Preparation of Digitalis, Acetyldigoxin. C. D. Enselberg, B. N. Brodoff and S. I. Griboff.—p. 909.
*New Device for Objective Auscultation of Heart: Permanent Audible and Visual Record of Heart Acoustics. A. Briskier.—p. 914.
Heart Scarab of Ancient Egyptians. S. Rodbard.—p. 918.
Congenital Aortic Atresia and Hypoplasia of Aortic Orifice: Case Reports on Two Members of a Family. V. G. Brekke.—p. 925.
Fatal Reaction to 1-Hydrazinophthalazine (Apresoline). B. M. Cohen —p. 931.

Internal Mammary Coronary Artery Anastomosis.—The anatomical structure of the ventricular myocardium and the pathological conditions existing in coronary heart disease suggested to Vineberg and Miller that an implanted internal mammary artery can bridge the blocked superficial coronary vessels which are still open and free of disease. A new approach to the vascularization of the myocardium was first attempted by them in 1945. As a result of experiments on several series of dogs they concluded that coronary artery disease is limited to the epicardial vessels. The vessels within the myocardium are, for the most part, not diseased. There exists, therefore, within the myocardium, a vast network of patent vessels capable of carrying arterial blood to the myocardium. Fresh arterial blood reaches this network when an internal mammary artery is placed with an open sixth intercostal artery between the myocardial fibers. The authors feel that the estimation of the value of experiments designed to revascularize the myocardium should be based on functional studies. In their experiments they demonstrated that the internal mammary artery after implantation into the myocardium is capable of maintaining the circulation of the left ventricle after complete or partial occlusion of the anterior descending branch of the left coronary artery. These experiments suggested that internal mammary artery implantation might be of value in the treatment of human coronary artery insufficiency. To date nine patients with coronary artery insufficiency have undergone internal mammary artery implantation. The results have been most encouraging and will be published.

New Device for Objective Auscultation of Heart.—In order to register simultaneously the heart acoustics for visual and audible reproduction, three known instruments (eventually to be combined into one unit) are used: the electrocardiograph, the phonostethograph, and the electromagnetic tape recorder. While the limb and chest leads pick up the electrical waves of the heart beats and transmit the magnified waves upon a moving medium, the microphone simultaneously picks up the heart sounds and murmurs. These are first carried to the same moving medium for visual recording of the sound, which is the known electrostethogram; the same sounds and murmurs picked up by the microphone are simultaneously recorded on a sound magnetic tape. This simultaneous visual and aural recording of the heart beats, sounds, and murmurs can be called an audiovisocardiogram. This permanent record can be studied, compared, and discussed at any time. It can be kept on file or shipped anywhere to be examined by a physician who did not examine the patient. The sounds are less distorted, the tape giving higher fidelity than the phonographic disk. The permanent visual and audible record will enable the physician to follow a given disease step by step. In many instances, questionable murmurs become clarified. Any eventual change in the quality of a sound or murmur can be added and compared with those previously recorded. The audiovisocardiogram will reduce the margin of errors so often encountered in auscultation and may prove of value in a variety of medical fields: in rheumatic mitral stenosis, in the surgical treatment of congenital heart disease, and during labor (changes in fetal heart beats could be recorded). The method might prove useful for teaching purposes, in clinics, in induction centers, factories, insurance companies, and in legal medicine.

Am. Journal of Clinical Pathology, Ann Arbor, Mich.

23:519-622 (June) 1953

Symposium on Clinical Hemoglobinometry. F. W. Sunderman, R. P. MacFate, D. A. MacFadyen and others.—p. 519.
Indirect Colorimetric Determination of Cholesterol. T. V. Feichtmeir and J. Bergerman.—p. 599.
Normal and Abnormal Values of Protein-Bound Iodine: Obtained by Chloric Acid Method. B. Zak, A. M. Koen and A. J. Boyle.—p. 603.
New Test for Bilirubin in Urine. H. Sobotka, A. V. Luisada-Opper and M. Reiner.—p. 607.
Tablet Test for Bilirubin in Urine. A. S. Giordano and M. Winstead.—p. 610.
Use of Sequestrene as Anticoagulant. G. G. Hadley and N. L. Larson.—p. 613.
Rapid Identification of Pasteurella Pestis Using Specific Bacteriophage Lyophilized on Strips of Filter Paper: Preliminary Report. D. C. Cavanaugh and S. F. Quan.—p. 619.

American J. Digestive Diseases, Fort Wayne, Ind.

20:149-185 (June) 1953

Hematologic Studies in Atrophic Gastritis. M. E. Dailey, M. J. Ellenhorn and E. H. Falconer.—p. 149.
Massive Resection of Small Intestine: Six Year Follow-Up Study. J. K. Berman, E. D. Habegger and E. Billings.—p. 152.
Compatible Hyperglycemia. A. Sindoni Jr., P. Gerber, F. Bove and L. Zibold.—p. 157.
Iron Equilibrium: Clinical Observations on Nutritional Anemia. A. C. Johnson.—p. 179.

American Journal of Medicine, New York

14:651-782 (June) 1953

Effect of Weight Reduction and Caloric Balance on Serum Lipoprotein and Cholesterol Levels. W. J. Walker, E. Y. Lawry, D. E. Love and others.—p. 654.
*Hypercholesterolemia, Myxedema and Atherosclerosis. H. L. Blumgart, A. S. Freedberg and G. S. Kurland.—p. 665.
Failure of Ingestion of Cream to Affect Blood Coagulation. J. A. Tulloch, R. S. Overman and I. S. Wright.—p. 674.
*Evaluation of Anticoagulant Therapy in Myocardial Infarction Based on Prognostic Categories. R. H. Furman, C. O. T. Ball, R. G. Gale and others.—p. 681.
Control of Prothrombin Activity with Tromexan Therapy. M. Weiner, G. Simson, J. J. Burns and others.—p. 689.
Clinical Evaluation of Ethyl Biscoumacetate (Tromexan). J. B. Vander Veer, E. H. Funk Jr., F. R. Boyer and E. A. Keller.—p. 694.
Clinical Use of New Anticoagulant, Phenylindanedione: Report of 400 Cases. A. Blaustein, N. Shnayerson and R. Wallach.—p. 704.
Serum Cholinesterase in Health and Disease. L. J. Vorhaus and R. M. Kark.—p. 707.
Evaluation of Anticoagulant Therapy. I. S. Wright.—p. 720.

Hypercholesterolemia, Myxedema, and Atherosclerosis.—Clinical and postmortem findings are reported in five men and three women between the ages of 22 and 63 with rheumatic heart disease or cor pulmonale. They had all survived one to 13 years following total surgical thyroidectomy and had clinical hypothyroidism or myxedema with increased cholesterol values. These patients were generally maintained with basal metabolic rates of approximately -20% by small doses of thyroid. The blood cholesterol levels of these patients averaged 125 mg. above the average pretreatment levels of 170 mg. per 100 cc. Cholesterol values of over 400 mg. per 100 cc were present for many months in some of these patients. Postmortem examinations did not reveal complete occlusion of any of the coronary arteries of these eight patients. Five of the eight showed no narrowing of any of the main stems or branches of the coronary arteries. Only three of the eight showed slight narrowing of one of the main stems. In the other arteries atheromatosis and atherosclerosis varied greatly but were similar to that generally observed in similar euthyroid patients. The authors' observations do not disprove the role of the cholesterol in the production of atherosclerosis. They demonstrate, however, that the hypothyroid state with its hypercholesterolemia is not necessarily and by itself a sufficient etiological factor for the production of coronary atherosclerosis.

Anticoagulant Therapy in Myocardial Infarction.—Bishydroxycoumarin (Dicumarol) alone or bishydroxycoumarin and heparin were given to 100 patients during episodes of acute myocardial infarction. An earlier group of 211 patients receiving conventional treatment but no anticoagulants served as controls. Eighteen of the anticoagulant-treated patients died (a mortality rate of 18%), while 68 of the control group died (a mortality rate of 32%). Patients were classified in prognostic categories according to the following criteria: (1) very poor risks, in whom the attack was the patient's first and shock and diabetes or shock and azotemia were present, or who had had a previous attack and in whom shock was present or congestive failure and diabetes and azotemia were present; (2) poor risks, in whom shock, congestive failure, diabetes, or azotemia was present within the first week of admission; and (3) good risks, in whom none of the concomitant manifestations in group 1 and 2 were present. Anticoagulants failed to improve the mortality rate in the "very poor risk" category. The mortality rate in the "good risk" category was very small with or without anticoagulants. The beneficial effects of anticoagulants were most apparent in the "poor risk" group of patients and then chiefly in those less severely ill. Such beneficial effects cannot be entirely ascribed to a reduction in thromboembolic phenomena, since thromboembolic complications in the authors' experience played a minor role in the course of acute myocardial infarction. The lower mortality rate in these patients treated with anticoagulants was probably due either to some property of these agents in addition to their anticoagulant property or to other entirely unrelated and undetected factors.

American Journal of Physiology, Washington

173:189-378 (May) 1953. **Partial Index**

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Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

69:907-1080 (June) 1953

Dissecting Aneurysms of Thoracic and Abdominal Aorta: Report of Six Cases, with Discussion of Roentgenologic Findings and Pathologic Changes. G. S. Lodwick.—p. 907.
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Grid Depth Dose Investigation for 200 and 400 Kilovolts at Center and Edge of Field. L. E. Jacobson.—p. 991.
Effect of Selective Shielding of Rabbit Intestine During Total Body Irradiation. R. S. Farr and P. H. De Bruyn.—p. 1001.

Intrauterine Perforation of Meckel's Diverticulum.—The case reported is of interest primarily because one of the complications of Meckel's diverticulum, ulceration and perforation, occurred during gestation and caused the appearance of roentgen findings commonly associated with meconium ileus. Only subsequent postmortem examination, nine hours after birth, disclosed the true nature of the roentgen findings. The specimen of the small intestine showed a diverticulum measuring 3.5 cm. in length and 2.5 cm. in diameter in the ileum approximately 3 cm. from the ileocecal junction. The diverticulum was ruptured and the gap covered over by thickened peritoneum, which itself was the site of a marked inflammatory reaction and had a thick greenish-brown fibrinopurulent exudate on its surface. The walls of the diverticulum were thin, necrotic and also covered with this patchy exudate. The cut surface of the intestine revealed a hemorrhagic, necrotic wall. The mucosa in the diverticulum was largely sloughed. A review of the world literature disclosed no similar case.

Radioactive Gold in Treatment of Carcinoma of Prostate.—Older methods of irradiation proved unsatisfactory in cancer of the prostate, because, although sufficient radiation could be applied to destroy the tumor, adjacent normal structures, notably the rectum and bladder, received too much radiation. With the advent of Au^{198}, whose main radiation component is beta rays, the prostate seemed a site in which to try this isotope. The first patient was a 72-year-old man who had had a transurethral resection for obstruction, and had been treated with diethylstilbestrol for the five months after it had been demonstrated that cancer of the prostate was present. Radioactive gold was used, and in three weeks the large, hard mass was impalpable. Ninety-two days after the injection, biopsy specimens were negative for carcinoma. In the past 17 months, the authors treated 120 cases of inoperable carcinoma of the prostate with radioactive gold. All possible operative procedures are carried out before the injection of the gold is begun. After estimation of the amount of tissue involved by malignancy, the radiologist measures the amount of radioactivity desired and dilutes it to the proper volume. He then loads the protected syringe and passes it to the urologist who does the injecting. Usually from 8 to 16 cc. of the diluted material of Au^{198} are injected into the prostate from within the bladder. The periprostatic region and the seminal vesicles are injected transvesically and extravesically. Palpable nodes are also injected. If the estimated amount of involved tissue was between 20 and 35 gm., the authors used 3 mc. per gram; if 35 to 70 gm., 2 mc. per gram; if 75 to 150 gm., 1 mc. per gram of tissue. Because of complications, this dosage schedule was later reduced to 1 mc. per gram; but the regression of the tumors so treated has not been as satisfactory as with the earlier dose. At the present the authors feel that a moderate sized prostate, between 30 and 60 gm., is probably best treated with a millicurie per gram ratio of 2 to 1. About 98% of the patients treated showed rapid decrease in the size of the palpable neoplasm. Eleven of 37 cases with postinjection biopsies showed no evidence of neoplasm. Of the 50 patients observed from 6 to 17 months, 27 are alive without evidence of clinical disease and seven died without evidence of carcinoma. Eight are alive with clinical disease and eight died with the disease. Complications are almost exclusively confined to rectal irritation. There were 15 cases in the first 50 and three in the subsequent 67 with this complication. Four developed rectal ulcers, three of which required colostomy.

Am. Practitioner & Digest of Treatment, Philadelphia

4:305-374 (May) 1953

Medical Management of Poliomyelitis Problem: Part II. R. Batson.—p. 305.
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Neurological and Neurosurgical Approaches to Cerebral Palsy. P. Robb.—p. 337.

4:375-430 (June) 1953

Therapy of Acute Leukemia. K. C. Kelty and M. F. Beard.—p. 375.
Treatment of Symptomatic Leucorrhea with New Preparation. J. Rock and J. M. Nauss.—p. 382.
Pregnancy in the Diabetic. A. Weinstein.—p. 384.
Phenylbutazone (Butazolidin®) in Musculoskeletal Diseases, Bronchial Asthma and Other Allergic Diseases. A. Rowe Jr., R. W. Tufft, P. G. Mechanick and A. H. Rowe.—p. 390.

American Review of Tuberculosis, New York

67:707-894 (June) 1953

Tuberculosis Today and Tomorrow. D. T. Smith.—p. 707.
Method for Evaluating Attitudes of Tuberculous Patients. G. Calden.—p. 722.
Observations on Effect of Induced Hyperglycemia on Glucose Content of Cerebrospinal Fluid in Patients with Tuberculous Meningitis. J. E. Sifontes, R. D. B. Williams, E. M. Lincoln and H. Clemens.—p. 732.
Pulmonary Function in Pregnancy: II. Comparison of Effects of Pneumoperitoneum and Pregnancy in Young Women with Functionally Normal Lungs and Serial Observations During Pregnancy and Postpartum Pneumoperitoneum. W. E. Patton, W. H. Abelman, N. R. Frank and others.—p. 755.
Id.: III. Serial Observations in Patients with Pulmonary Insufficiency. E. A. Gaensler, W. E. Patton, J. M. Verstraeten and T. L. Badger.—p. 779.
Toxicity of Isoniazid for Rhesus Monkey. L. H. Schmidt, R. Hoffman and H. B. Hughes.—p. 798.
*In Vitro and In Vivo Activity of Streptomycin and Isoniazid Singly and in Combination. G. L. Hobby, T. F. Lenert, Z. C. Rivoire and others.—p. 808.
Toxic Lipid Component of Tubercle Bacillus ("Cord Factor"): II. Occurrence in Chloroform Extracts of Young and Older Bacterial Cultures. H. Noll and H. Bloch.—p. 828.
Id.: III. Occurrence and Distribution in Various Bacterial Extracts. J. Asselineau, H. Bloch and E. Lederer.—p. 853.
*Caseation Necrosis in Human Brucellosis: Report of Case. J. B. Crow, D. M. Tormey, W. J. Redner Jr. and B. H. Sullivan.—p. 859.

Action of Streptomycin and Isoniazid Singly and in Combination.—Hobby and associates present the following results of in vitro and in vivo studies that indicate the high degree of antituberculous activity of isoniazid against both streptomycin-susceptible and streptomycin-resistant organisms. The emergence of resistance to combinations of streptomycin and isoniazid occurs more slowly than to either compound alone. Neither compound is capable of preventing the ultimate emergence of resistance to the other. Cross-resistance between streptomycin and isoniazid may occur under certain conditions despite the fact that isoniazid is effective against streptomycin-resistant organisms not previously in contact with isoniazid and that streptomycin is effective against isoniazid-resistant organisms not previously in contact with streptomycin. It was concluded, therefore, that streptomycin and isoniazid, when used under appropriate conditions and in adequate quantities, may act synergistically both in vitro and in vivo. Not enough data are available to permit the assumption that the impressions gained from the observations reported would apply to all strains of Mycobacterium tuberculosis. There is some evidence that the action of isoniazid alone and in combination with streptomycin against Myco. butyricum may differ from its action against the H37Rv strain of Myco. tuberculosis. Further evidence is needed to confirm this impression and to prove whether or not all strains of Myco. tuberculosis var. hominis parallel the strains used in the present study.

Caseation Necrosis in Human Brucellosis.—A 21-year-old man was hospitalized on May 23, 1951, with the chief complaints of vomiting and diarrhea. He had been in good health until May 21, 1951. He was aware of an asymptomatic generalized lymphadenopathy for several weeks prior to this illness. For almost a year preceding the illness he had been employed in a meat-packing plant where he slaughtered cattle and hogs. Some three months before this hospitalization, he sustained a laceration of his lower lip when struck by the thrashings of a pig. This lesion healed. His temperature now was 102.2 F, and he was acutely ill. Several nontender firm cervical lymph nodes, 0.5 to 2 cm. in size, were palpable. Similar lymph nodes could be felt in the supraclavicular, axillary, inguinal, and epitrochlear regions. Brucella suis recovered by blood cultures was highly susceptible in vitro to chloramphenicol, aureomycin, and streptomycin and was resistant to penicillin and sulfadiazine. A supraclavicular lymph node was biopsied on June 1, 1951, and on pathological examination it was found to consist of five firm, gray-white lymph nodes with yellow, granular cut surfaces. Microscopically, the lymph nodes were poorly circumscribed and partially encapsulated. Almost the entire section was composed of large confluent masses of avascular caseation necrosis. Scattered foci of calcification were noted. Because of the clinical evidence of toxicity and abnormal urine findings, the patient was given 1.5 gm. of aureomycin daily for 12 days, or a total of 18 gm. There was prompt clinical improvement characterized by subsidence of fever, malaise, nausea, vomiting, diarrhea, and abdominal distress. The lymphadenopathy noticeably regressed. The Brucella agglutination titer gradually rose, and blood cultures five weeks after the onset of the acute illness yielded the growth of Brucella suis. A second course of aureomycin was instituted consisting of 0.5 gm. every six hours for 14 days, or a total of 28 gm. Blood cultures became negative following this therapy, and there was a gradual fall of the agglutination titer. The patient regained 10 lb. (4.5 kg.) in weight. On discharge, he was asymptomatic and afebrile, but two blood cultures after return from a convalescent furlough were positive for Brucella suis, and so the patient was recalled for further therapy. A review of the literature of pathological material from the Armed Forces Institute of Pathology indicates that the inflammatory reaction to the Brucella organism is, in general, nonspecific.

American Surgeon, Atlanta, Ga.

19:491-584 (June) 1953

Neurogenic Tumors of Anterior and Middle Mediastinum: Report of Two Cases. L. E. Tebow and R. B. Brown.—p. 491.

Fourth Dimension in Pulmonary Disease. R. H. Overholt and S. W. Atwell.—p. 498.

Cholelithiasis and Cardiac Disease. R. M. Garrett.—p. 503.

Retrograde Jejuno-Gastric Intussusception: Review of Literature and Report of Case. P. Lavadia Jr., B. W. Haynes Jr. and M. E. De Bakey.—p. 507.

Repair of Neglected Ruptured and Severed Achilles Tendon. W. J. Tobin. —p. 514.

Recurrent Carcinoma of Ampulla of Vater: Case Report. J. P. Woodhall and M. Mass.—p. 523.

Management of Postoperative Pulmonary Bronchial and Vascular Congestion. W. S. Edwards.—p. 528.

Clinical Evaluation of Succinylcholine (Win 7907): Report of Its Use in 100 Cases. O. A. Zeller Jr., J. W. McGowan and W. F. Sergent. —p. 533.

Surgical Treatment of Stenotic Valvular Disease. W. J. Burdette.—p. 540.

Endometriosis. J. B. Lukins and L. Lukins.—p. 562.

Congenital Esophageal Atresia with Tracheo-Esophageal Fistula: Report of Five Cases. G. B. Hodge and G. D. Johnson.—p. 569.

*Herniation of Lumbar Intervertebral Disks in Coal Miners: Preliminary Report. E L. Gage and W. A. Shafer.—p. 577.

Herniation of Lumbar Intervertebral Disks.—Gage and Shafer have operated since 1946 on 564 patients for herniation of intervertebral disks. The report deals with 303 of these patients, who were coal miners. Some of these men worked at loading coal while on their knees or in a stooped position in coal tunnels no higher than 26 to 40 in. (65 to 100 cm.). Direct injury was claimed by 35.9% as a cause of their complaints but in only 22.7% was a connection with work injuries accepted. A rather high percentage of the miners (nearly two-thirds) had multiple disk involvement. This may be due to the fact that many with single disk lesions may have become symptom-free with conservative treatment. No disk lesion was found in 3.6% at operation. Plain roentgenograms and laboratory tests were not sufficient for diagnosis, which was made primarily by a neurological examination supplemented in 14% of the cases by myelography. At the last follow-up 277 of the miners either returned to work or were convalescing satisfactorily. Their ability to remain at work must be determined by a five year follow-up study. The authors believe that miners with true disk herniation who have not been relieved by conservative treatment should be operated upon and that the majority of these patients can then return to work at the mines. Most miners who have had multiple disk lesions should not work in extremely low coal seams, however.

Blood, New York

8:491-586 (June) 1953

Concentration of Intrinsic Factor and Vitamin B_{12}-Binding Activities of Fractions of Desiccated Hog Stomach. W. H. Krusoff, A. D. Welch, R. W. Heinle and G. C. Meacham.—p. 491.

*Some Observations on Anemia in Rheumatoid Arthritis. M. R. Jeffrey. —p. 502.

Erythrophagocytosis in Case of Plasma Cell Leukemia. C. E. Butterworth Jr., W. B. Frommeyer Jr. and W. H. Riser Jr.—p. 519.

Nature of Neutral Red Staining Refractive Particles in Lymphocytes of Blood of Normal Humans. L. H. Hempelmann and N. P. Knowlton Jr.—p. 524.

Effect of Horse Serum, Adrenal Hormones, and Histamine on Number of Eosinophils in Blood and Peritoneal Fluid of Mice. H. Panzenhagen and R. Speirs.—p. 536.

*Control of Postirradiation Hemorrhagic State by Platelet Transfusions. M. C. Woods, F. N. Gamble, J. Furth and R. R. Bigelow.—p. 545.

Proteolytic and Fibrinolytic Activity of Serum: Activation by Streptokinase and Staphylokinase Indicating Dissimilarity of Enzymes. E. E. Cliffton and D. A. Cannamela.—p. 554.

Preservation of Leukocytes. J. L. Tullis.—p. 563.

Use of Nitrogen Mustard in Management of Two Pregnant Lymphoma Patients. K. W. Deuschle and W. S. Wiggins.—p. 576.

Anemia in Rheumatoid Arthritis.—Moderate anemia is a common feature of rheumatoid disease but its origins remain obscure and its treatment is frequently unsatisfactory. The presence of anemia may hinder adequate physical or orthopedic treatment and may produce a degree of lassitude that considerably aggravates the joint disability. Investigations on the following aspects of this anemia are reported: (1) changes in the peripheral blood and bone marrow, (2) blood, plasma, and corpuscle volumes, and (3) changes in iron metabolism. The patients studied had active rheumatoid arthritis, uncomplicated by any disease liable to affect hemopoiesis. The patients were partly "selected" by the fact that this hospital receives a predominance of cases refractory to outpatient treatment, such as gold or simple physiotherapy. The series included patients of various ages, differing widely in the severity and duration of their disease, and is believed to represent a fair sample of cases of active rheumatoid arthritis associated with anemia. The anemia was essentially normocytic and hypochromic, the mean corpuscular volume being usually normal and the mean corpuscular hemoglobin content and concentration usually reduced. Anemia was more pronounced in the presence of very active disease. The myelogram suggested impaired maturation of normoblasts and retarded hemoglobin formation. The blood and plasma volumes were not essentially abnormal, though the frequent asthenic habitus and loss of weight might produce apparently exalted values in terms of body weight. Changes common to many anemias were found in the relatively severe cases of anemia, that is, normal plasma volume with decreased corpuscle and whole blood volume. The plasma iron concentration was usually reduced; subnormal values were invariable in cases with very active disease or marked anemia. The iron-binding capacity of the serum might be raised by iron deficiency or slightly reduced but not enough to be a factor in producing or maintaining anemia. As judged by changes in the plasma iron, intestinal absorption of iron after a single maximal therapeutic dose was variable. Some cases showed the excellent absorption and therapeutic response characteristic of simple iron deficiency. Others gave evidence of impaired absorption.

Platelet Transfusion in Postirradiation Hemorrhagic State.—The hemorrhagic state following massive irradiation is characterized by the appearance of erythrocytes in large numbers in the lymph. The peak of this erythrocyte diversion into the lymph is reached in rats at 9 to 14 days and in dogs at 11 to 17 days after irradiation. The parallel between the postirradiation hemorrhagic tendency and the decrease in circulating platelets has been confirmed by several workers. A new impetus to studies of the role of platelet deficiency in radiation injury was given by the work of Cronkite and coworkers, who demonstrated that daily injections of platelet suspensions begun before thrombocytopenia developed prevented the hemorrhagic phase. This study describes the extent to which platelet injections diminish the hemorrhagic tendency of irradiated dogs and rats as indicated by erythrocyte counts in the lymph. Suspensions of concentrated, homologous blood platelets when introduced intravenously into lymph-cannulated dogs and rats (9 to 12 days after exposure to an LD$_{50}$ or greater dose of x-rays) eliminated the large scale diversion of erythrocytes into the lymph during the hemorrhagic phase of radiation injury. By means of injection of platelets preinjection levels of below 50,000 were raised to an average of 107,000 in 6 dogs, and to an average of 310,000 in five rats at 15 to 30 minutes after injection. All platelet-injected animals showed clearing of the bloody lymph within the first hour after injection, and within five to six hours the average erythrocyte count in the lymph of dogs dropped from an average of 270,000 to an average of 12,000 and in the rats from an average of 900,000 to an average of 30,000. No depression of lymph erythrocyte counts was found in control rats receiving plasma only. Lymph erythrocyte counts in the platelet recipients remained low for 24 to 36 hours after injection; bleeding into the lymph space reappeared in both rats and dogs when the platelet level dropped below approximately 50,000. Blood platelet and lymph erythrocyte levels are excellent indexes of the severity of the hemorrhagic phase of radiation injury and for gaging the results of therapeutic procedures. While the mechanism of platelet action remains to be demonstrated, the present studies support the thesis of earlier workers that platelets are essential to maintain vascular integrity and that a platelet deficiency is the main cause of the postirradiation hemorrhagic state.

California Medicine, San Francisco

78:487-532 (June) 1953

Corticotropin (ACTH) and Cortisone: Newer Concepts of Their Use in Clinical Practice. L. W. Kinsell, L. Boling, J. W. Partridge and N. Foreman.—p. 487.
Organic Phosphorus Poisoning in General Practice: Parathion, TEPP, HEPT, EPN and Others. P. H. Leach.—p. 491.
Chest Injuries Among Korean Casualties. H. J. Chapman, E. H. Dickinson, E. Rollins and others.—p. 496.
Endoscopy in Hernia at Esophageal Hiatus. S. J. Stempien and A. D. Silk.—p. 499.
Diseases and Deaths: Summary of Data from Los Angeles County General Hospital, 1918 to 1948. E. Bogen, E. M. Butt and A. Djang. —p. 501.
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Testicular Torsion and Acute Epididymitis: Procaine Infiltration of Spermatic Cord as Aid in Differentiation. G. I. Smith.—p. 506.
New Vasoconstrictor—Preliminary Report. H. Steinberg.—p. 507.
*Pneumoperitoneum in Perforated Peptic Ulcer: Factors in Roentgenographic Demonstration. W. Gaines.—p. 508.
Pyloroplasty for Gastric Drainage with Vagotomy. F. B. Wilkins.—p. 513.

Roentgenographic Demonstration of Pneumoperitoneum in Perforated Peptic Ulcer.—The proved cases of perforated ulceration of the stomach and duodenum observed at the San Francisco City and County Hospital in the eight year period ended July 1, 1950, were reviewed. All cases in which there was a final diagnosis of perforation of benign ulceration were included, whether or not the perforation was sealed off or adherent to the liver or the pancreas at the time of operation or autopsy. The total was 337 cases. Roentgenologic examination was performed in 324 cases. A review of the data on these 324 cases indicated that pneumoperitoneum is more likely to be demonstrated in roentgen films made within six hours after perforation than in films made after a longer interval. In several cases films made early did not show intraperitoneal gas and later films did. There appeared to be no constant relationship between the size of the perforation and the incidence of demonstrable pneumoperitoneum; it was less often demonstrated in cases of posterior perforation than when the lesion was at an anterior site. In many cases roentgen examination was performed with the patient in both the erect and the left lateral decubitus positions. These two roentgenographic views were equally reliable, and there was agreement between them in 94% of the cases. Clinical factors may influence the decision as to which position should be used. It is easier for a patient with acute pain in the abdomen to turn on his side than to sit erect. Also, the lateral decubitus position may facilitate the escape of intraluminal gas if there is considerable fluid in the stomach. If the physical condition of the patient permits, it would seem wise to take films in both positions.

Cancer Research, Chicago

13:397-476 (June) 1953

*Mechanisms Responsible for Origin and Distribution of Blood-Borne Tumor Metastases: Review. D. R. Coman.—p. 397.
Effect of Hypophysectomy on Development of Adrenal Tumors in C3H Mice. D. J. Ferguson and M. B. Visscher.—p. 405.
Studies on Origin of Naturally Occurring Antibodies Against Tumor Viruses Developing in Aging Chickens. F. Duran-Reynals, B. R. Burmester, G. E. Cottral and E. Bryan.—p. 408.
Studies on Metabolism of 2-Benzoylaminofluorence-9-C^{14} and 2-Acetylaminofluorine-9-C^{14} in Rat. H. R. Gutmann and J. H. Peters.—p. 415.
Transplantation of Human Brain Tumors to Brains of Laboratory Animals. H. S. N. Greene.—p. 422.
Promoting Action of Croton Oil in Skin Tumorigenesis. M. Klein. —p. 427.
Effect of Various Compounds on Ehrlich Ascites Carcinoma. K. Sugiura. —p. 431.
Failure of Biotin or Oxybiotin to Exert a "Procarcinogenic" Effect on Tumor Formation by 4-Dimethylaminoazobenzene. A. E. Axelrod and K. Hofmann.—p. 442.
*Hypercalcemia, a Complicaton of Hormone Therapy of Advanced Breast Cancer. B. J. Kennedy, D. M. Tibbetts, I. T. Nathanson and J. C. Aub. —p. 445.
Genesis and Growth of Tumors. VI. Effects of Varying Level of Minerals in Diet. A. Tannenbaum and H. Silverstone.—p. 460.
Studies on Intracellular Composition of Livers from Rats Fed 2-Acetylaminofluorene. A. K. Laird and E. C. Miller.—p. 464.

Blood-Borne Tumor Metastases.—This paper reviews concepts of the mechanisms of metastasis in the light of knowledge gained from experiments during the past 10 or more years. The local invasiveness of cancer cells is primarily dependent upon loss of the mutual adhesiveness of the cells, which loss is associated with, if not due to, local calcium deficiency. The easily detached single cancer cells, or small clusters of them, are ameboid and are thereby enabled to penetrate the adjacent tissues. Distant dissemination of cancer cells is largely dependent upon entrance of cells into vascular channels through which they are carried to other parts of the body. Duration of growth of the primary tumor bears a positive relationship to the number of metastases, whereas the size of the primary tumor is less effective in influencing the number of metastases. The venous distribution of metastases is largely dependent upon the anatomical arrangement of the venous channels (including the vertebral veins) into which emboli are commonly released. This accounts for the frequency of metastatic involvement of the lungs, the liver, and the bones of the spine, pelvis, and skull. The arterial distribution of metastases is also dependent upon the number of embolic cells reaching the various organs, and in addition depends upon whether the embolic cancer cells lodge in capillaries and sinusoids or in thick-walled arterioles. These phenomena are variable from organ to organ, and may account for the relative infrequency of metastasis to some organs (spleen, muscle) and the frequency of metastasis to other organs (adrenals, kidney). The lungs, although frequently the site of metastatic tumors, apparently afford relatively adverse conditions for tumor growth. This may be attributable to the peculiar physical structure. Single embolic cells or tiny clusters, rather than large clumps, give rise to most metastases, because these cells are able to reach the capillary bed whereas large clumps lodge in arterioles. "Soil" factors affecting the distribution of metastases seem to consist chiefly of physical or mechanical circulatory differences rather than of chemically favorable or unfavorable environments for the growth of tumor cells.

Hypercalcemia, a Complication of Hormone Therapy in Breast Cancer.—Kennedy and associates call attention to the fact that hypercalcemia is a potential serious complication during androgenic and estrogenic hormone therapy of patients with advanced breast cancer. Nine patients with obvious hypercalcemia were culled from a series of 361 women with advanced cancer of the breast who were treated with sex steroid hormones. The complication occurred only in patients with osseous involvement. Eighty-four of 253 patients treated with estrogens and 97 of 108 treated with androgenic hormones demonstrated osseous metastases. Of these, seven patients treated with androgens and two patients treated with estrogens developed manifestations of the hypercalcemia syndrome. Two patients with hypercalcemia, not included in the above consecutive series, were studied recently and have been incorporated in this report. The case histories of the 11 patients are presented. Metabolic studies of patients with "induced hypercalcemia" demonstrated an elevated serum calcium, hypercalcuria, altered serum and urinary phosphorus levels and occasionally renal insufficiency. Immobilization, possible acceleration of tumor growth, and removal of barriers to the spread of cancer cells may contribute to the development of the hypercalcemia. The resemblance to the metabolic effects of parathyroid hormone is described in one case. The occurrence of hypercalcemia as a complication of hormone therapy of breast cancer does not contraindicate its general use. Nor does the presence of a spontaneous elevation of serum calcium preclude hormone therapy. Once hypercalcemia is manifest, discontinuance of the hormone may be followed by a decrease of the serum calcium. Parenteral administration of fluid to prevent severe dehydration and measures to correct the electrolyte imbalances are helpful. A low calcium diet aids the reduction of the serum calcium. Sodium citrate may be given to reduce temporarily the amount of ionized calcium in the blood by formation of a soluble, nonionized calcium citrate complex. Caution must be exercised in regard to the total amount of sodium citrate given in a day, because if the renal function is impaired, alkalosis may be produced.

Diseases of Chest, Chicago

23:595-712 (June) 1953

Pulmonary Function and Circulatory Dynamics in Artificial Pneumoperitoneum: I. Studies on Patients with Pneumoperitoneum Therapy for Pulmonary Tuberculosis. R. C. Kory, D. C. Roehm, G. R. Meneely and R. A. Goodwin Jr.—p. 595.
Id.: II. Studies on Patients with Pneumoperitoneum as Therapeutic Measure in Pulmonary Emphysema. R. C. Kory, D. C. Roehm, G. R. Meneely and R. A. Goodwin Jr.—p. 608.
*Significance of Cell Types in Bronchogenic Carcinoma. H. J. Moersch and J. R. McDonald.—p. 621.
*Pulmonary "Coin" Lesions. H. G. Trimble.—p. 634.
Hypersensitivity Reactions to Oral Para-Aminosalicylic Acid. R. H. Hayes and M. Weiss.—p. 645.
*Kartagener's Syndrome in Children. L. B. Dickey.—p. 657.
Adrenal Function in Chronic Pulmonary Tuberculosis. J. W. Goldzieher and J. S. Edlin.—p. 667.
Cavernous Metastatic Pulmonary Carcinoma: Report of Two Cases. E. Salzman, J. H. Reid and G. I. Ogura.—p. 678.
Viability and Chemotherapeutic Sensitivity of Tubercle Bacilli Isolated from Pulmonary and Other Lesions in Embalmed Bodies at Autopsy. Case Report and Clinico-Pathologic Correlation of Cases Studied to Date. B. H. Johnson, F. Davis, R. W. Jamison and W. J. Marti. —p. 686.
Histoplasmin Sensitivity in Brazil. J. Silveira.—p. 693.

Cell Types in Bronchogenic Carcinoma.—The records of 1,000 patients with proved carcinoma of lung, taken at random from the files of the Mayo Clinic, were reviewed. Of the 895 men and 105 women between the ages of 22 and 80 years, 90 had small cell carcinoma, 137 had adenocarcinoma, 378 had large cell carcinoma, and 395 had squamous cell carcinoma. The ratio of men to women was 29:1 with small cell carcinoma and 25.3:1 with squamous cell carcinoma. The difference in the ratio of men to women was not so great in the two other cell types, being 3.4:1 for adenocarcinoma and slightly less than 6:1 for large cell carcinoma. The average age of the patients was slightly lower in those with small cell carcinoma than in patients with the other types of tumor. The duration of symptoms was shorter in patients with small cell carcinoma than in those with other types of tumor. In all of the cases of small cell carcinoma the patients had symptoms referable to the thorax. Such symptoms were not present in all of the patients with other types of carcinoma. With the exceptions noted, the symptoms were essentially the same in all patients. Roentgenographic examination of the thorax disclosed an abnormality in all but 12 of the total of 1,000 patients. Bronchoscopy was not performed in all patients in the respective groups. It was a very effective diagnostic procedure in those in whom the tumor arose from the central portion of the lung, that is, in cases of small cell carcinoma and in cases of squamous cell carcinoma. Cytological examination of the sputum or bronchial secretions was more effective in patients with small cell carcinoma and least effective in those with adenocarcinoma. The results of surgical treatment were more satisfactory in patients with squamous cell carcinoma than in those with other types of carcinoma. The results of surgical treatment were least satisfactory in patients with small cell carcinoma.

Pulmonary "Coin" Lesions.—Pulmonary "coin" lesions, as defined by Davis and Klepser, are located in the lung substance, and are round, oval or lobulated, with their edges sharply demarcated and contours smooth, without cavitation and usually without calcification. In this type of lesion, a definitive diagnosis usually cannot be confirmed by the various laboratory and x-ray procedures. The diagnosis requires surgical exploration for the removal of the nodule and pathological study. When this is done, these lesions, many of which look similar on the x-ray film, will finally be diagnosed as a large variety of pathological entities. The author presents five illustrative cases in three men and two women between the ages of 34 and 72. Exploratory thoracotomy was performed in all five patients, and the mass was removed. The pathological diagnoses were chronic granuloma (probably due to histoplasmosis), Boeck's sarcoid, tuberculoma, bronchial adenoma, and squamous cell carcinoma of the lung. The important fact is that in various series reported in the literature, from 15 to 30% of the lesions were malignant, and in some specially selected older age groups as high as 70%. Small flecks of calcium, not clearly part of a Ghon complex, do not rule out the possibility that the lesion may be malignant, and they are not a contraindication to exploratory procedures. Exploratory thoracotomy is a benign procedure comparable in risk to appendectomy and should be thought of in the same way as most physicians and even the general public have been educated to think about biopsy of a lump in the breast. The nodule should be removed so that a definite pathological diagnosis can be made. It should not just be watched until a clinical diagnosis can be achieved because by that time metastases are likely to be present and the chance for successful surgery has been greatly reduced. Agreement on these points is almost universal among men skilled in treating diseases of the chest, but is not as widespread among the general medical profession and certainly not among the general public.

Kartagener's Syndrome in Children.—The occurrence of Kartagener's syndrome in four girls and one boy between the ages of 6 weeks and 14 years is reported. Of the five children with transposition of the heart to the right side four had complete situs inversus and one had dextrocardia only. Atelectasis, early or late bronchiectatic changes, and sinusitis were present in all patients. Lobectomy was performed on three with beneficial results. The youngest patient died before the operation could be performed. The author believes that some congenital factor plays a part in the pulmonary features of the disease. It has not been established whether there is a developmental error in the bronchial walls or whether the pulmonary lesions are secondary to the cardiovascular anomalies. It is probable that in most instances atelectasis precedes bronchiectasis. The treatment of Kartagener's syndrome consists of resection of the affected pulmonary tissue as soon as the patient is deemed a good surgical risk. The age of the patient in the younger years, after the neonatal period, need not be considered in making the decision. Treatment of sinusitis is indicated, although it is usually not nearly so successful as that of the bronchiectasis.

Iowa State Medical Society Journal, Des Moines

43:205-250 (June) 1953

SYMPOSIUM ON BLEEDING FROM UPPER GASTROINTESTINAL TRACT

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Case of "Pulmonary Adenomatosis" Emphasizing Diagnostic Considerations. L. D. Amick.—p. 219.

Journal Clin. Endocrin. & Metab., Springfield, Ill.

13:629-752 (June) 1953

Effects of Epinephrine on Metabolism of 17-Hydroxycorticosteroids in the Human. A. A. Sandberg, D. H. Nelson, J. G. Palmer and others. —p. 629.
Effect of ACTH and Cortisone on Concentration of Circulating Antibody in Patients with Acute Hepatitis. P. L. Eichman and W. P. Havens Jr. —p. 648.
Comparative Observations Regarding Utilization and Excretion of Infused Glucose, Fructose, and Invert Sugar, Respectively. J. Bertino, N. Dawson, R. French and others.—p. 658.
Effect of Intravenous ACTH on Blood Level of Ascorbic Acid and of Sulfhydryl as Determined by Modified Amperometric Technique. J. W. Goldzieher, P. R. Epstein, W. B. Rawls and M. A. Goldzieher.—p. 662.
Fractionation by Countercurrent Distribution of Urinary Estrogens in Normal Individuals and in Patients with Hyperadrenocorticism. C. J. Migeon.—p. 674.
Comparative Clinical Evaluation of Estrogenic Preparations by Menopausal and Amenorrheal Indices. H. S. Kupperman, M. H. G. Blatt, H. Wiesbader and W. Filler.—p. 688.
Some Metabolic and Biochemical Effects of Methylandrostenediol. F. Homburger, R. M. Dart, C. D. Bonner and others.—p. 704.
Influence of Adrenal and Gonadal Steroids on Uptake of Iodine by Thyroid Gland. W. Zingg and W. F. Perry.—p. 712.
Use of Cortisone for Congenital Adrenal Hyperplasia in the Male: Report of Case. C. F. Gastineau, G. B. Logan, A. Albert and H. L. Mason. —p. 724.

Journal of International College of Surgeons, Chicago

19:665-798 (June) 1953

Compression Granuloma of Spinal Cord Caused by Schistosoma Mansoni Ova; Epiconus; Conus Medullaris; Cauda Equina: Report of Case. C. Gama.—p. 665.
Volkmann's Ischemic Contracture as Complication of Supracondylar Fractures of Humerus. H. W. Meyerding.—p. 675.
Total Pancreatectomy. I. Honjo and C. Araki.—p. 692.
Internal Derangements of Temporomandibular Joint. H. K. Christie. —p. 704.
Diverticulosis and Diverticulitis. S. A. Linde.—p. 716.
*Perirenal Oxygen Insufflation. J. S. Ritter and A. A. Johnson.—p. 732.
Intubated Ureterotomy for Treatment of Stricture of Ureteropelvic Juncture and Upper Part of Ureter: Personal Simplified Technic. C. P. Mathé.—p. 744.
*Surgical Treatment of Mediastinal Lymphoblastoma: Addition of Case and Review of Literature. P. Thorek.—p. 753.
Bone and Joint Changes Following Injury. H. E. Billig Jr.—p. 760.
Effects of Pregnancy on Ulcerative Colitis. O. C. Foster and E. S. Cohen.—p. 763.
Aberrant Pancreatic Tissue in Wall of Stomach. R. G. Majer.—p. 769.

Perirenal Oxygen Insufflation.—Ritter and Johnson point out that the introduction of gases into the perirenal area was first advocated by Carelli. In their own studies they combined Carelli's technique with that more recently described by Rivas. The purpose of the perirenal insufflation is to visualize the structures of the retroperitoneal areas, particularly those lying immediately below the diaphragm. They believe that it is incorrect to say that the Carelli or the direct method of perirenal insufflation is now replaced by the Rivas or the indirect method. These two methods are interrelated; one complements the other. They have found that in cases in which the technique of Rivas failed to reveal the structures of the perirenal area, resort to the Carelli method clearly outlined a tumor of the kidney. Perinephritis and perirenal extravasation due to trauma can be ruled out, when oxygen reaches the renal areas and surrounds the kidney. After experimenting with several gases, the authors found oxygen the most satisfactory and the least dangerous. They describe a new apparatus for accurate measurement of the quantity of gas injected and for recording the pressure under which the gas is introduced. Perirenal insufflation represents a valuable addition to the urologic diagnostic armamentarium.

Surgical Treatment of Mediastinal Lymphoblastoma.—The 10-year-old boy whose history is given had been well until two weeks prior to entrance into the hospital. At that time he complained of pain and "fullness" over the right side of the chest. This was especially marked whenever he attempted to run. Physical examination revealed a slight bulging and diminished breath sounds over the anterior aspect of the right side of the chest. The roentgenogram revealed a mass located in the anterior and middle mediastina. The barium-filled esophagus showed the close proximity of the tumor. The impression was that there was either a dermoid or a teratoma in the anterior mediastinum. The tumor was found to compress the lung, extending from the apex to the right and left innominate veins superiorly, to the pericardium medially and to the superior vena cava posteriorly. Frozen section revealed a lymphoblastoma. It was possible to enucleate the entire mass. The chest was closed and water seal drainage instituted. The postoperative course was uneventful, and a postoperative roentgenogram on the second day revealed good expansion of the right lung. One year has passed since the operation, during which time the boy has been given irradiation therapy. The boy's condition was good at the time of writing this report. In a review of literature 12 similar cases were found in which the patients were operated upon with apparent complete removal of a solitary mediastinal lymphoblastoma. Time and additional experience will be needed to determine whether or not surgical removal of such solitary lesions prior to irradiation will favorably alter the course of this disease.

Journal of Pediatrics, St. Louis

42:645-794 (June) 1953

Glycogen Storage Disease: Report of Case with Abnormal Glycogen Structure in Liver and Skeletal Muscle. G. B. Forbes.—p. 645.
Glycogen Storage Disease of Liver in Siblings. A. S. Traisman and H. S. Traisman.—p. 654.
*Comparison of Serum Levels Following Administration of Oral and Parenteral Preparations of Penicillin to Infants and Children of Various Age Groups. N. N. Huang and R. H. High.—p. 657.
*Erythromycin in Treatment of Pyoderma in Children. L. S. Freeman and R. B. Scott.—p. 669.
*Use of Banthine Bromide in Infantile Pylorospasm: Report of Nine Cases with X-Ray Study. H. Levy and B. Zweifler.—p. 673.
Angiography in Case of Hydranencephaly. H. E. Thelander, E. B. Shaw and J. J. Piel.—p. 680.
Calcium Disodium Versenate in Therapy of Lead Encephalopathy. F. E. Karpinski Jr., F. Rieders and L. S. Girsh.—p. 687.
Incidence of Dermatoses Among Infants and Children as Seen in Outpatient Clinic at Skin Hospital in Large City. H. H. Perlman.—p. 700.
*Infectious Hepatitis in Childhood, with Special Consideration of "Progressive Hepatitis." E. S. Murphy and R. B. Johns.—p. 707.
Chest Development in Early Childhood. W. Kornfeld.—p. 715.
New Continuous Nebulizer (Alevizer) for Humidification and Alevaire Therapy. J. B. Miller.—p. 721.
Encephalopathy Occurring During Topical Use of Asterol. N. Goldstein. —p. 726.
Acute Disseminated Lupus Erythematosus with Hemolytic Anemia in 10-Year-Old Child. H. J. Jacobs.—p. 728.
Syndrome of Anomalous Left Coronary Artery. V. C. Kelly, W. S. Wilkins and R. B. Scott.—p. 731.
Substitutes for Cow's Milk in Infant Feeding. J. Glaser.—p. 734.

Serum Levels Following Penicillin Administration.—Penicillin levels in the serum of normal premature infants, normal full-term newborn infants, older infants from 2 weeks to 2 years of age, and children from 2 to 13 years of age were obtained after the administration of the following preparations of penicillin: (1) unbuffered oral potassium penicillin G, administered in a flavored vehicle containing 100,000 units per 5 cc.; (2) oral procaine penicillin administered in a flavored vehicle containing 250,000 units per 5 cc.; (3) crystalline potassium penicillin G diluted with sterile distilled water to a concentration of 100,000 units per cubic centimeter and administered by intramuscular injection; and (4) procaine penicillin diluted with sterile distilled water to a concentration of 300,000 units per cubic centimeter and administered by intramuscular injection. The various penicillin preparations were given in single doses of 10,000 units per pound of body weight. The penicillin assays were determined by a modification of Rammelkamp's serial dilution method. The test organism was group A hemolytic Streptococcus C-203. Distinctly higher and more sustained blood levels were observed in the full-term newborn and premature infants than in older infants and children after the administration of comparable doses of all four preparations. Lower gastric acidity and inefficient renal function in newborn infants may explain the differences observed between the newborn and older age groups. Minor differences have been observed in the levels following the administration of orally administered potassium penicillin G and orally administered procaine penicillin. Orally administered penicillin in doses of 10,000 units per pound of body weight produced levels of at least 0.03 unit per cubic centimeter for a minimum of six hours in full-term newborn and premature infants, for a minimum of four hours in infants up to 2 years of age, and for at least two hours in children over 2 years old. In all groups, intramuscularly administered potassium penicillin G in doses of 10,000 units per pound of body weight resulted in very high initial levels. The levels declined rapidly, however, so that the six hour levels were comparable to those observed after the oral administration of penicillin in all age groups except the youngest newborn infants. Intramuscularly administered procaine penicillin in doses of 10,000 units per pound of body weight produced high sustained levels for six hours; detectable levels were often demonstrable at the end of 24 hours. The ease with which therapeutically effective levels of penicillin can be achieved in the serum by the oral administration of penicillin indicates definite usefulness of this route of administration in the treatment of infections caused by penicillin-susceptible organisms in newborn and premature infants. A dose of 10,000 units per pound of body weight administered every 12 hours, or 20,000 units per pound of body weight per day, should be effective in the treatment of such infections in full-term newborn and premature infants, while an oral dose of 10,000 units per pound of body weight given at six hour intervals should be adequate for older infants and children. The dosage schedule of parenterally administered penicillin should be guided by the susceptibility of the organism. Beyond early infancy, the doses for infants and children should be comparable as based on body weight.

Erythromycin in Treatment of Pyoderma.—Ten children between the ages of 18 months and 12 years with impetigo and secondary pyoderma were treated with erythromycin ointment (Ilotycin). The ointment was applied locally over the affected areas in all patients. Four patients received erythromycin orally along with the local therapy. In all patients no new lesions appeared after 24 hours of treatment, and crust formation and healing were usually evident in 48 to 60 hours. The average patient received treatment for five days. The healing process continued after the treatment was discontinued. No recurrence developed. Transient hyperpigmentation occurred after healing in most patients. There was no evidence of drug sensitization or other untoward reactions. The courses of the four patients who received oral as well as local treatment with erythromycin were not pronouncedly different from those receiving local therapy alone. The authors feel that erythromycin ointment will prove of value in treating superficial skin infections caused by gram-positive bacteria.

Methantheline in Infantile Pylorospasm.—Eight infants with pylorospasm and one infant with cardiospasm, diagnosed clinically and confirmed by x-ray, were treated with methantheline (Banthine) bromide. The infants with pylorospasm were given 5 mg. of the drug, four times a day, while the one infant with cardiospasm required 50 mg. daily. The usual course of treatment was of one month's duration. All patients that were studied with post-treatment gastrointestinal x-ray series showed demonstrable roentgenographic improvement. Clinically, all eight infants with pylorospasm responded dramatically to methantheline treatment with cessation of vomiting. The infant with cardiospasm and a history of almost daily episodes of forceful vomiting immediately after feeding received methantheline for over two months and had a good clinical result. No toxic effects from the use of the drug were observed. Methantheline bromide is a useful adjuvant to the therapy of infantile pylorospasm.

Infectious Hepatitis in Childhood.—The occurrence of infectious hepatitis is reported in 40 children up to 15 years of age in Denver between 1946 and 1951. There were two deaths of the fulminant type after a total course of nine and eight days respectively in a 5-year-old boy and a 2-year-old girl. Necropsy was performed in both cases, and the liver showed the typical microscopic picture described by Lucké and Mallory. A third death occurred in a 10-year-old boy two months after the appearance of the first symptoms of infectious hepatitis. This patient had a syndrome that was unrelenting from the initial attack and included signs of portal hypertension with ascites, edema, jaundice, and fever. He died a few days after a surgical attempt to ligate his hepatic artery when the ascites had become uncontrollable. The postmortem examination of the liver revealed "subacute necrosis and regeneration," characterized by distortion of the lobular architecture by fibrosis, nodular regeneration of liver cells, and leukocytic infiltration. The 37 remaining patients were considered to have recovered completely from the acute disease. The usual illness began with fever and signs of upper respiratory infection, followed in one to two days by gastrointestinal complaints, including anorexia, nausea, and vomiting. Approximately 12 hours later abdominal pain began. On the fourth or fifth day dark urine or light-colored stools were noted. On the fifth or sixth day jaundice became apparent. Temperature usually was restored to normal with the onset of jaundice. Coupled with this typical clinical story, the laboratory findings of bile in the urine in a high percentage of the patients, an elevated serum bilirubin in all of the patients, an erythrocyte sedimentation rate that was elevated almost without exception, and a normal white blood cell count with a normal differential count confirmed the diagnosis of acute infectious hepatitis in childhood with few exceptions. Jaundice was observed in all of the authors' patients except one, who had the fulminant type and died on the eighth day. The authors believe that there are three clearly defined courses that a case of acute infectious hepatitis may pursue. The first and commonest is the "benign course"; the second, and most disastrous, is "fulminant hepatitis"; and the third, for which the term "progressive hepatitis" is proposed, is the syndrome already described by Alsted, Jersild, Wyllie and Edmunds, that may either end fatally in two to nine months without remission from the initial attack of hepatitis, or may result in at least an apparent clinical cure after this "progressive" period. The authors were unable to find in the American literature reports of cases similar to that of progressive hepatitis with fatal termination in their 10-year-old patient. They agree with Wyllie and Edmunds that the development of signs and symptoms of portal hypertension following an attack of infectious hepatitis in weeks or months is of grave prognostic significance.

Journal Pharmacology & Exper. Therap., Baltimore

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Reactions of Strips of Rabbit Aorta to Epinephrine, Isopropylarterenol, Sodium Nitrite and Other Drugs. R. F. Furchgott and S. Bhadrakom. —p. 129.

Comparison of Adrenergic Blocking Action of Ilidar (Ro 2-3248), Regitine (C-7337) and Priscoline in Innervated Saphenous Arterial Bed (Skin Exclusive of Muscle) and Femoral Arterial Bed (Muscle Exclusive of Skin) of Anesthetized Dog. H. D. Johnson, H. D. Green and J. T. Lanier.—p. 144.

Analgesic Power and Question of "Acute Tolerance" to Narcotics in Man. H. K. Beecher.—p. 158.

Colchicine: II. Metabolism of Frog Skeletal Muscle. F. C. Ferguson Jr. —p. 186.

New Group of Potent Sedatives. H. Weidmann and P. V. Petersen. —p. 201.

Cardiovascular Responses During Amphetamine Tachyphylaxis. A. Horita, T. C. West and J. M. Dille.—p. 224.

Journal of Thoracic Surgery, St. Louis

25:545-654 (June) 1953

Contributions of Surgery to Knowledge of Pulmonary Disease. R. M. Janes.—p. 545.
Arterial Oxygen Tension in Rest and During Effort as Test of Pulmonary Function. V. O. Björk, P. A. Michas and L. G. Uggla.—p. 558.
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Block Dissection in Pneumonectomy for Carcinoma. J. F. Higginson. —p. 582.
Primary Subpleural Intrapulmonic Thymoma. A. R. Crane and P. T. Carrigan.—p. 600.
*Benign Tumors and Cysts of Esophagus. R. C. Totten, A. P. Stout, G. H. Humphreys and R. L. Moore.—p. 606.
*Surgical Correction of Atrial Septal Defects Associated with Transposition of Pulmonary Veins. W. B. Neptune, C. P. Bailey and H. Goldberg. —p. 623.

Benign Tumors and Cysts of Esophagus.—Most of the data reviewed in this paper were collected from the reports of 163 cases of tumors and cysts. Some were clinically manifest, and others were incidental autopsy findings. Forty other cases were reviewed and discarded because of incomplete clinical or pathological information. The clinical material includes 40 intraluminal polypoid tumors, 46 solid intramural tumors, and 17 cysts. The sessile intraluminal growths, supernumerary tissues, muscular hypertrophy, and inflammatory conditions are discussed in the section on pathology, since many did not produce symptoms. Benign tumors of the esophagus may be divided into two groups: the intraluminal and the intramural. In the former group most of the tumors are fibrous polyps, although polypoid lipomas and leiomyomas occur. The majority of these intraluminal tumors are attached in the region of the cricoid cartilage. Sessile intraluminal growths occur, but rarely, if ever, are of clinical importance. The solid intramural tumors are predominantly leiomyomas and may be found at any level. The intramural cysts are congenital in origin and usually contain derivatives of the primitive foregut. Most of these occur in the middle or lower thirds of the esophagus. Supernumerary tissues, other than gastric epithelium, rarely appear in the esophagus and inflammatory conditions are not common. The tumors, particularly the polyps, may be difficult to diagnose, but roentgenography and esophagoscopy are helpful. Most of the polypoid tumors may be removed via the esophageal lumen, whereas a thoracic or abdominal approach plus enucleation and/or resection is necessary to treat the intramural growths. Malignant polypoid and intramural tumors occur that clinically can mimic the benign growths. A good prognosis may be expected provided an accurate diagnosis is made and proper therapy is employed.

Surgical Correction of Atrial Septal Defects.—Among their patients with atrial septal defects, Neptune and associates observed five with anomalous drainage of the veins of the right lung into the right atrium, just to the right of the remnant of the atrial septum. None of these defects were of the persistent ostium primum type; all were located posteriorly in the septum, although they varied in their distance from the auriculoventricular valves. They were relatively large, even in the children, and capable of admitting one to three fingers. Among the various methods that have been tried or suggested for the closure of atrial septal defects, Bailey's atrioseptopexy technique was the first effecting complete surgical closure of large defects of this type. Neptune and his associates used successfully a simple modification of this atrioseptopexy technique in two of five cases that were observed since this technique was developed. Detailed case reports of these two patients with septal defects and transposition of the pulmonary veins of the right lung are described. Successful repair of the defects was proved by cardiac catheterization. The technique for the complete surgical correction of atrial septal defect associated with transposition of the pulmonary veins of an entire lung is presented. A method for correction of anomalous pulmonary venous drainage of all pulmonary veins into the right atrium and/or its tributaries is suggested.

Medical Annals of District of Columbia, Washington

22:279-338 (June) 1953

Role of Some Experimental Anticonvulsants, Mysoline, Milontin and 1461L. B. Smith and F. M. Forster.—p. 279.
Some Notes on Antibiotics and Chemotherapy in Infectious Diseases. W. J. Martin.—p. 283.
Selection of Patients for Psychiatric Referral. M. L. Adland.—p. 289.
Thyroiditis. J. H. Lyons.—p. 292.
Endometriosis. R. Bieren.—p. 298.

Michigan State Medical Society Journal, Lansing

52:569-688 (June) 1953

Jaundice. P. Thorek.—p. 597.
Recurrent Acute Intussusception. J. E. Summers.—p. 601.
Psychodynamic Aspects of Peptic Ulcer. L. A. Schwartz.—p. 603.
Cortisone and Pregnancy. E. J. De Costa.—p. 613.
Epilepsies: Their Diagnosis and Treatment. R. P. Mackay.—p. 618.
Health Study of Detroit-Windsor Air Pollution Investigation. J. G. Molner and A. S. Rabson.—p. 626.
The Acutely Inflamed Eye. P. C. Kronfeld.—p. 631.
Diagnosis of Occupational Disease. O. T. Mallery Jr.—p. 633.

Missouri Medicine, St. Louis

50:395-462 (June) 1953

*Amniotic Fluid Pulmonary Embolism: Report of Two Cases and Review of Literature. J. C. Bacala.—p. 411.
An Introduction for Physicians to an In-Patient Rehabilitation Service in General Hospital. O. Machek.—p. 415.
Selection of Far Advanced Cancer Patient for Roentgentherapy. J. O'Donoghue.—p. 419.
*Weber-Christian Disease: Report of Two Cases Treated with Cortisone. L. B. Harrison and J. A. Saxton Jr.—p. 427.
Misconceptions Concerning Nuclear Explosions. C. P. Hungate.—p. 431.
Good Physicians, Good Citizens. G. S. Benson.—p. 435.

Amniotic Fluid Pulmonary Embolism.—Pulmonary embolism caused by amniotic fluid is a rare entity, only 44 cases having been reported since it was first described by Steiner and Lushbaugh in 1941. The condition is characterized clinically by sudden shock during labor in a previously asymptomatic woman. Its cause may be strong or tetanoid contractions, administration of pitocin, quinine or castor oil, an oversize fetus, prolonged intervals between deliveries, multiparity, previous cervical laceration and conization, and sometimes obstetric abnormalities. Diagnosis is based on the clinical picture; autopsy may reveal a ruptured uterus, pulmonary edema, edema and hemorrhages in the broad ligament, retroperitoneal hematoma and hemorrhage, and embolism. Histological examination may show amniotic fluid elements, such as epithelial squamae, meconium, vernix caseosa, mucinous debris, and lanugo in the pulmonary vessels. Although death has been ascribed to reflex vasospasm or mechanical occlusion and anoxia, anaphylaxis seems to be the most likely cause. Late studies have revealed that normally the amniotic fluid passes through the placental barrier, enters the maternal circulation, and is excreted through the kidneys. Thus, primary sensitization of the mother to the amniotic fluid is explained, and, when the amniotic fluid enters suddenly into her blood stream during the shock, anaphylaxis ensues. The authors report two cases of amniotic fluid pulmonary embolism in a total of 26,322 deliveries at the obstetrical department of St. Anthony's Hospital in St. Louis during the last 10 years. The diagnosis was established in both patients on the basis of the clinical picture. In the first patient, a 35-year-old woman, para 5, with a previous cervical conization, a ruptured uterus and amniotic fluid extravasation were found at autopsy; histological examination of the lungs revealed amniotic fluid particulates in the pulmonary vessels. In the second patient, a 41-year-old woman, para 7, microscopic examination did not show amniotic fluid constituents in the lungs but autopsy revealed emboli in the bifurcation of the pulmonary artery and extravasation of amniotic fluid in the left pelvic floor adjacent to an area of uterine softening that possibly may have been a uterine tear.

Cortisone in Nodular Nonsuppurative Panniculitis.—Results are reported of cortisone therapy in two women with nodular nonsuppurative panniculitis. The disease in both patients was confined to the lower legs, although as a rule the subcutaneous tissues of other parts of the body are also involved. Both legs were greatly swollen in the first patient, and tender nodular swellings were present beneath the skin in the calves. Despite administration of antibiotics and sulfadiazine, the number of nodules continued to increase and the pain increased to such an extent that the patient was confined to a wheel chair. Cortisone therapy was then attempted; a dose of 50 mg. was given at first four times daily, then, after the first improvement, three times daily, and finally twice daily. Within two weeks the swelling had disappeared from both legs, and only one or two small but not tender nodules were still present in each calf. The patient was discharged and continued to take the drug for four weeks. After four months she was still well and was doing her own housework. A relapse occurred six months after she left the hospital, but the recurrent symptoms subsided again with cortisone therapy. Administration of 50 mg. of the drug four times daily for 10 days brought about a prompt improvement in the other patient. Four months later she was well and only small depressions over the posterior surface of each calf could be seen. Cortisone is valuable in the treatment of nodular nonsuppurative panniculitis but it is not a cure. The cause of this disease is still unknown. Observations in these two cases suggest that it probably is not a local bacterial infection and that the tissue reactions that cause the onset of the symptoms are suppressed by cortisone in the same manner that this drug suppresses the tissue reactions in some collagen diseases. A relationship to collagen diseases is suggested by the similar response to cortisone therapy and the relapsing course of nodular nonsuppurative panniculitis, but further evaluation of cortisone therapy in this disease is needed.

New England Journal of Medicine, Boston

248:959-994 (June 4) 1953

SYMPOSIUM ON OBESITY

Reorientation on Obesity. A. W. Pennington.—p. 959.
Lipogenesis. S. Gurin.—p. 965.
Health and Obesity. D. P. Barr.—p. 967.
Relation of Obesity to Longevity. L. I. Dublin.—p. 971.
Psychology of Overeating. H. W. Brosin.—p. 974.
Treatment of Peptic Ulcer. L. Betzel.—p. 976.

Oral Surgery, Oral Medicine & Oral Path., St. Louis

6:691-804 (June) 1953. **Partial Index**

Open Reduction of Fractures of Mandible. R. E. Crowley.—p. 691.
Incidence of Gingivitis Among Sample of Massachusetts School Children. D. G. Stahl and H. M. Goldman.—p. 707.
Studies in Etiology of Chronic Desquamative and Hyperkeratotic Lesions of Oral Mucous Membranes. M. Karshan, D. E. Ziskin, H. F. Silvers, G. Stein and A. H. Kutscher.—p. 716.
Clinical Toxicity of Epinephrine Anesthesia. S. P. Dick.—p. 724.
*Multiple Myeloma Occurring in Jaws: Study of 17 Cases. K. W. Bruce and R. Q. Royer.—p. 729.
Hyperparathyroidism (Generalized Osteitis Fibrosa). W. Schneider. —p. 745.
Cysts of the Gingiva. B. Ritchey and B. Orban.—p. 765.
*Osteogenesis Imperfecta Tarda with Dentinogenesis Imperfecta. P. D. Toto.—p. 772.

Multiple Myelomas Occurring in the Jaws.—The case records and roentgenograms of the jaws of 59 patients with myeloma were reviewed. Of these patients, 17 exhibited evidence of myeloma in the jaws. Whereas the ratio of males to females was approximately 2 to 1 in the 59 patients, among the patients with lesions in the jaws women predominated. All but one patient with myeloma of the jaws had general skeletal involvement; this patient had a solitary myeloma of the jaw and no lesions elsewhere in the skeleton. The mandible was more frequently involved than the maxilla. Lesions occurred oftener in the posterior portion of the body, the angle, and the ascending ramus of the mandible than elsewhere in the jaw. More patients exhibited lesions in the skull than in the jaws. Symptoms referable to the jaw, such as pain, pressure sensation, numbness, swelling, expansion of the jaw, mobility of teeth, and epulis formation, were observed. In seven cases the initial symptoms of myeloma were observed first in the jaw. Usually myelomas of the jaw appear roentgenographically as multiple rounded lesions that have little circumferential osteosclerotic bone reaction. These vacuolated configurations are frequently situated within a larger region of diffuse radiolucency with hazy ill-defined margins. Histopathologic examination of tissue from the jaw in 5 cases disclosed tumor tissue that was composed of closely packed anaplastic cells resembling plasma cells. The supporting stroma was scanty but vascularity was prominent. This study demonstrates the prevalence of myelomas in the jaw and illustrates that oral examination can be helpful in the diagnosis of generalized disease.

Osteogenesis Imperfecta with Dentinogenesis Imperfecta.—Osteogenesis imperfecta, osteopsathyrosis, fragilitas ossium, blue sclera and brittle bones are synonymous. Dentinogenesis imperfecta, odontogenesis imperfecta, and hereditary opalescent dentine are synonyms of allied dental disturbance, which is characterized by chipping and cracking of the enamel with a rapid wearing down of the teeth, and an opalescent color described as blue, gray, and reddish-brown. The case presented is one of osteogenesis imperfecta tarda illustrating the typical physiognomy, history, and allied dental disturbance. The patient was a 17-year-old youth, who complained that the enamel of his teeth was chipping off. The teeth were opalescent gray-brown. The physiognomy was characterized by bitemporal protuberances with the ears turned out and forward. The forehead appeared broad, but the maxilla and mandible appeared small. This gave a triangular shape to the face. When questioned regarding the history of fractures, the patient admitted having suffered fractures of the left clavicle five times, of the left humerus once, and of the little finger on the left hand once.

Psychiatric Quarterly, Utica, N. Y.

27:185-366 (April) 1953

Concerning Nature of Communication. E. Berne.—p. 185.
Three-Year Follow-Up Study of Nonconvulsive Histamine Biochemotherapy, Electric Convulsive Post-Histamine Therapy, and Electric Convulsive Therapy Controls. R. R. Sackler, A. M. Sackler and M. D. Sackler.—p. 199.
Factors Involved in Genesis and Resolution of Neurotic Detachment. M. Ullman.—p. 228.
Evaluation of Treatment. J. H. Wall.—p. 240.
Treatment Plan Combining Group and Individual Psychotherapeutic Procedures in State Mental Hospital. J. Green.—p. 245.
Histamine Therapy in Psychiatric Disorders. P. Polatin, A. S. Effron and R. C. Robertiello.—p. 254.
Dream Life in Case of Hebephrenia. B. Karpman.—p. 262.
Ligation of Anterior Choroidal Artery for Involuntary Movements—Parkinsonism. I. S Cooper.—p. 317.

Psychiatry, Washington, D. C.

16:99-214 (May) 1953. **Partial Index**

Current Views on Psychotherapy. F. Alexander.—p. 113.
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Some Notes on Psychotherapy of Delusional Patients. M. Boverman. —p. 139.
Psychology of Religious and Ideological Conversion. L. Salzman.—p. 177.

Quart. Bull. Sea View Hospital, Staten Island, N. Y.

14:49-96 (April) 1953

Treatment of Advanced Caseous-Pneumonic Tuberculosis with Isonicotinic Acid Hydrazides. I. G. Tchertkoff, M. Asisian and P. Nenashev. —p. 49.
Results Obtained with Streptomycin and Other Modalities in 154 Patients with Pulmonary Tuberculosis. G. G. Ornstein and L. Lercher.—p. 57.
*Isonicotinic Acid Hydrazide in Excisional Surgery of Tuberculous Lung. L. R. Davidson and M. Beaulieu.—p. 66.
Treatment of Pulmonary Hydatid Cysts: Experience with Over 500 Cases in Greece. E. Lecos.—p. 72.
Case of Chronic Pulmonary Tuberculosis Treated with Iproniazid and Streptomycin: Pathology Report. V. Altmann and E. Shin.—p. 78.
Chronic Pulmonary Tuberculosis Complicated by Hodgkin's Disease and Treated with Isoniazid and Streptomycin: Autopsy Findings in a Case. V. Altmann, A. Tendlau and E. Shin.—p. 87.

Isoniazid in Pulmonary Excision for Tuberculosis.—Preliminary observations are presented on the use of isoniazid and iproniazid in excisional surgery of the tuberculous lung and in the treatment of complications of resection. Twelve patients received the isoniazid preoperatively, and a second group of 28 patients received it only for postoperative complications. The authors gained the impression that, with the use of the isonicotinic acid derivatives, lung resection may be made available to more patients with far advanced pulmonary tuberculosis than was hitherto considered possible. Operation may be done for lesions that would ordinarily be considered inoperable. Complications that follow resection may be managed better with the aid of these drugs.

Review of Gastroenterology, New York

20:353-448 (June) 1953

SYMPOSIUM FOR THE GENERAL PRACTITIONER

Acute Lower Abdominal Emergencies. D. B. Crawford Jr., W. A. Wickern and H. W. Cave.—p. 363.
Insulin and Diabetes Endogenous and Exogenous Insulin. H. O. Mosenthal.—p. 373.
Differential Diagnosis of Upper Abdominal Pain. L. J. Boyd.—p. 387.
Rectal Bleeding. M. P. Cowett.—p. 394.
Bleeding from Gastrointestinal Tract. S. S. Berger.—p. 398.
Milestones in Diagnosis and Treatment of Diarrheal Diseases. W. Z. Fradkin.—p. 410.
Problems in Differential Diagnosis of Jaundice. C. M. Leevy and J. A. Emmert.—p 422.

Rhode Island Medical Journal, Providence

36:229-284 (May) 1953

Medicolegal and Pathological Aspects of Suicide. A. E. O'Dea.—p. 245.
Some Clinical Aspects of Suicide. N. L. Loux.—p. 248.
Coronary Occlusion and Myocardial Infarction. A. Caputi and L. E. Burns.—p. 251.
Videotherapy as an Office Procedure. B. B. Mongillo.—p. 253.

Rocky Mountain Medical Journal, Denver

50:447-530 (June) 1953

Surgery of Major and Minor Traumatic Wounds Including Burns. H. Conway.—p. 469.
X-Ray Diagnosis of Neoplasms of Gastrointestinal Tract. R. J. Bloor.—p. 475.
Clinical and Diagnostic Aspects of Carcinoma of Lung. M. E. Murphy.—p. 480.
Aldrin Poisoning. E. Nelson.—p. 483.

Southern Medical Journal, Birmingham, Ala.

46:529-632 (June) 1953. Partial Index

Fibrous Lesions of Bone. J. P. Adams and J. L. Goldner.—p. 529.
Amputations of Upper Extremity with Present Concepts of Prosthetic Replacement. J. W. Batch and A. W. Spittler.—p. 545.
Concept and Clinical Aspects of Factitial Dermatitis. D. T. Gandy.—p. 551.
*Advantages of X-Ray Diagnosis in Pregnancy. R. H. Barter and J. Parks.—p. 555.
Report on Cytology of 5,800 Vaginal Smears. L. F. Turlington, W. C. Barclift and H. M. Brown.—p. 562.
Management of Polycystic Disease on an Ambulatory Basis. J. H. Dougherty.—p. 566.
Continuous Enteral Feeding and Its Importance in Protein Metabolism of the Sick. J. Elliott, J. J. Griffitts, D. W. Smith and others.—p. 572.
Use of Opiates in Chronic Illness. R. Blankinship and T. F. Coates Jr.—p. 578.
Differentiation and Management of Abnormal Mental States in the Aged. W. T. Brown and J. A. Smith.—p. 582.
Physical Medicine and Rehabilitation as Applied to Geriatrics. A. B. C. Knudson.—p. 585.
Changing Problems in Public Health. W. T. Sowder.—p. 589.
Industrial Medicine and Private Practice. P. A. Davis.—p. 594.
Treatment of Tendon Injuries. S. B. Fowler, D. L. Eyler and G. K. Carpenter.—p. 601.
Polyradiculopathy in Man Produced by St. Louis Encephalitis Virus (SLE). M. Sanders, A. Blumberg and W. Haymaker.—p. 606.
Recurrent Henoch-Schonlein Purpura. A. M. Freeman.—p. 609.
Cortisone in Ophthalmology: Clinical Evaluation of Therapeutic Results. L. A. Breffeilh.—p. 612.
Electro-Encephalography in Allergic Epilepsy. S. C. Dees.—p. 618.
What the General Practitioner Should Know About Management of Allergic Skin Disorders. W. M. Sams.—p. 620.

Advantages of X-Ray Diagnosis in Pregnancy.—Barter and Parks believe that even though x-ray diagnosis is being used oftener in obstetrics, relatively few obstetricians utilize its full potentialities. Discussing roentgenologic pelvimetry, the authors say that, while ideally all primigravidas should be subjected to x-ray pelvimetry, as a rule it is done only for those in whom abnormalities are revealed by manual mensuration. Such abnormalities include a diagonal conjugate of 11.5 cm. or less, a reduction in the interspinous and intertuberous diameters, abnormal curvature or forward displacement of the sacrum, and the characteristics of the masculine type of pelvis. Roentgen ray pelvimetry is indicated also in primigravidas with a breech or other abnormal presentation or with an unengaged fetal head at term. Roentgen ray pelvimetry is indicated in all pregnant women who are less than 5 ft. (152 cm.) tall, who have an abnormal presentation, particularly if the fetus seems larger than previous ones, who have a history of difficult labor or of previous cesarean operation, whose labors are progressing poorly, or who have a history of a pelvic fracture. The presence of true uterine inertia should never be accepted unless cephalopelvic disproportion has been ruled out as a cause of ineffective labor. Aside from pelvimetry, roentgen examination is helpful in determining the presentation and position of the fetus and in the diagnosis of multiple pregnancy. In the presence of an overdistended uterus, roentgen examination is important to differentiate between polyhydramnios, a single large fetus, or a multiple gestation. In the late weeks of pregnancy the age of the fetus may be determined to some degree. Antepartum diagnosis of an anomalous fetus can be made in most instances. Fetal death in utero may be established by roentgen rays, although the findings may not become apparent until several days after the death of the fetus. Placentography has been used successfully in some clinics, and the diagnosis of abdominal pregnancy can be facilitated by the use of roentgen rays. The roentgenologist and obstetrician must work as a team if the best results are to be obtained with roentgen examination in the care of the maternity patient and her child.

Southwestern Medicine, El Paso, Texas

34:149-188 (May) 1953

Current Medical Problems for 1953-1954. G. Turner.—p. 162.
Notes from Orthopaedic Surgery: Fractures: Non Unions. W. C. Basom.—p. 171.

34:189-228 (June) 1953

Care and Treatment of Congestive Heart Failure. R. H. Homan.—p. 208.
Differences Between Collagen Diseases. L. G. Jekel.—p. 212.

Stanford Medical Bulletin, San Francisco

11:79-136 (May) 1953. Partial Index

*Nontropical Sprue Treated Successfully with Corticotropin: Case Report. B. M. Meyer and A. Goldfien.—p. 91.
Microdiffusion Method for Alcohol Determination. E. J. Newman and H. W. Newman.—p. 96.
Precipitating Stresses in Peptic Ulcer. T. M. Myers.—p. 100.
Recent Advances in Radiation Therapy. L. H. Garland.—p. 110.
Benign Tumors of Parotid. R. S. Pollack and D. K. Clawson.—p. 115.
Atypical Blood Clotting Patterns in Hemophilia. T. H. Spaet, B. Kinsell, H. M. Behring and P. M. Aggeler.—p. 118.

Corticotropin in Treatment of Nontropical Sprue.—The diagnosis of idiopathic steatorrhea in the patient described was supported by the presence of diarrhea, steatorrhea, a flat oral glucose tolerance test curve, megaloblastic anemia, and free hydrochloric acid in the gastric juice. The patient had previously responded to treatment with crude liver extract, folic acid, and vitamin B_{12}, but the cessation of therapy was followed by a relapse. At the time of writing the patient has been in clinical and hematological remission for more than 15 months following treatment with corticotropin. The corticotropin was given by intravenous infusion for 54 days. For the first 18 days of treatment he received 13.5 units of corticotropin daily. The dosage was then reduced to 10 units daily for 6 days, after which it was reduced to 5 units daily for 30 days. Adequate adrenal response to treatment was proved by the fall in fasting eosinophil counts. Throughout the period of treatment the patient was maintained on a high calorie, low salt diet with supplemental potassium. The response of this patient to corticotropin supports previous observations that adrenal steroids alter the course of idiopathic steatorrhea.

The more pronounced and prolonged effect of therapy in this case, as compared to those previously reported, may be in part due to more vigorous adrenal stimulation. Although observations published to date indicate that endogenous or exogenous adrenal steroids can alter the pathological physiology of idiopathic steatorrhea, the nature of this alteration and the manner in which it takes place is unknown. It is pointed out that adrenal insufficiency and steatorrhea may have the following disturbances in common: asthenia, hyperpigmentation, hypotension, steatorrhea, and an abnormal blood sugar response to ingested glucose. Recent studies fail to support the possibility that a causal relationship exists between adrenal insufficiency and sprue. It is assumed that the response to corticotropin in this patient was due to improved intestinal absorption of various nutrients including hematopoietic factors.

Surgery, St. Louis

33:799-966 (June) 1953

Prediction of Effect of Lumbar Sympathectomy on Skin Temperature of Lower Extremity in Patients with Obliterative Arterial Disease. J. J. Cranley, S. A. Leiseca, J. L. Buchanan and others.—p. 799.
*Role of Sympathectomy in Treatment of Frostbite. N. H. Isaacson and J. B. Harrell.—p. 810.
Experiences with Epidural Analgesia for Sympathetic Block. J. R. Thistlethwaite, T. G. Edison, C. Gruenwald and I. Harrison.—p. 818.
Some Effects of Cortisone on Aortic Grafts. J. R. Barberio, J. W. Pate, P. N. Sawyer and C. A. Hufnagel.—p. 827.
Method for Complete Drainage of Superior and Inferior Venae Cavae into Extracorporeal Circuits. J. A. Helmsworth, L. C. Clark Jr., R. T. Sherman and others.—p. 835.
Study of Influence of Adrenal Steroids on Strength of Healing Wounds: Preliminary Report. E. C. Meadows and J. F. Prudden.—p. 841.
Recanalization of Vena Cava: An Experimental Study. R. M. Miles and J. M. Young.—p. 849.
Surgical Treatment of Mitral Insufficiency: Experimental Use of Transplanted Pericardium in Dogs. A. R. Henderson and C. L. Law.—p. 858.
Nature of Bleeding in Esophageal Varices. T. W. Wagenknecht, J. F. Noble and I. D. Baronofsky.—p. 869.
*Hypothalamic Influences on Hydrochloric Acid Secretion of the Stomach. R. W. Porter, H. J. Movius and J. D. French.—p. 875.
Spontaneous Fistula of Abdominal Wall with Chronic Pancreatitis, Abscess Formation, and Calculi. A. M. Vaughn and W. B. Hobbins. —p. 881.
Radical Groin Surgery with Particular Reference to Postoperative Healing. J. P. Woodhall.—p. 886.
Prevention of Pancreatic Fat Necrosis by Enzyme Inhibitors: III. Quinine. H. L. Popper and H. Necheles.—p. 896.
"Rectus-Wick" Operation in Ascites. G. G. Crowe.—p. 898.

Sympathectomy in Treatment of Frostbite.—A unilateral ganglionectomy was performed in 28 men and 5 women between the ages of 22 and 65 who had bilaterally equal frostbite in both lower extremities. The untreated extremity served as a control for evaluation of the sympathectomy. Most of the patients sustained their injury after an alcoholic bout on a cold, wintry night. In 24 patients ganglionectomy was performed prior to the onset of gangrene, while the remaining 9 patients already had gangrene of varying extent involving their lower extremities. Sympathectomy did not prevent or limit the extent of gangrene when performed early, nor did it hasten healing once gangrene was established. Seven patients of the 33 had 10 subsequent admissions to the hospital for repeated frostbite, which was usually sustained in a manner similar to their initial injury. Sympathectomy did not protect the extremity against repeated cold injury. Seven patients presented themselves 3 months to 31 years after cold injury with one or more of the chronic sequelae such as paresthesias and pain, trophic ulcers, and coldness and numbness of feet. It is in the treatment of these late sequelae of frostbite that sympathectomy has its greatest application. In all patients the feet became subjectively and objectively warmer following ganglionectomy, the skin temperatures increasing 2 to 4 degrees Fahrenheit by actual measurement and oscillometric readings by up to 40%. Paresthesias and pain were relieved. Ulcers disappeared, circulation improved, and symptoms subsided. As proof of the efficacy of the procedure, results were so impressive that sympathectomy was proceeded with in the control extremity in five patients, with similar spectacular results.

The Hypothalamus and Hydrochloric Acid Secretion.—Experiments were made on monkeys to study alterations in gastric hydrochloric acid secretion induced by stimulation of the hypothalamus. The animals were anesthetized with cyclopropane and concentric bipolar electrodes were placed in the anterior or posterior hypothalamus after small burrholes were made in the cranium. Condenser discharge stimuli of 2 v. were delivered at a frequency of five per second for 30 seconds. Gastric samples were obtained through a Levin tube before stimulation and at half hour intervals for five hours thereafter, and their hydrogen ion concentrations were determined with a glass electrode pH meter. Animals had been fasted for 24 hours and the stomach emptied as completely as possible before stimulation. The anterior or posterior hypothalamus was stimulated in intact animals, 48 hours after bilateral vagotomy, 48 hours after bilateral adrenalectomy, 48 hours after bilateral adrenalectomy and vagotomy, and 48 hours after spinal cord section. In a second series of experiments, the gastric hydrochloric acid response to subcutaneous insulin and corticotropin (ACTH) was measured in intact animals 48 hours after bilateral vagotomy, and 48 hours after bilateral adrenalectomy. Results of the stimulation experiments revealed that the hypothalamus increases the secretion of gastric hydrochloric acid by two distinct and separate routes. The first originates in the anterior hypothalamus, is conducted through the vagus nerve, and is blocked only by vagotomy. The peak of its response is prompt. The second, with a later peak response, arises in the posterior hypothalamus, is conducted humorally through the pituitary-adrenal system, and is blocked only by adrenalectomy. The increase in gastric hydrochloric acid induced by administration of insulin, exhibits features of the responses to both anterior and posterior hypothalamic stimulation. It would appear, therefore, that insulin excites hydrochloric acid secretion through both channels. The administration of corticotropin to animals not operated on produced an increase in gastric acid secretion that was very similar to that resulting from posterior hypothalamic stimulation. Vagotomy had no effect on this response, while adrenalectomy abolished it completely. These data on the monkey may be expected to approximate more closely those concerning human physiological processes than others previously reported in carnivores. The authors' observations support those described in the cat and dog, and hence strengthen extrapolations of these experimental findings in man.

Tennessee State Medical Assn. Journal, Nashville

46:197-234 (June) 1953

Ideals and Ethics of Medicine. P. R. Hawley.—p. 197.
Management of Headache. E. P. Cutter.—p. 202.
Diagnosis and Treatment of Patent Ductus Arteriosus. W. K. Swann, T. L. Lomasney and J. E. Acker.—p. 205.
Gynecomastia. J. G. Riddler.—p. 210.
Case Report: Mixed Tumor of Hypopharynx with Malignant Changes and Distant Metastasis. H. Duncan.—p. 212.

Texas State Journal of Medicine, Fort Worth

49:351-484 (June) 1953

Looking Back. T. C. Terrell.—p. 354.
Current Medical Problems for 1953-1954. G. Turner.—p. 356.
Crossing the Bar. L. H. Reeves.—p. 359.
What is Public Relations? G. Turner.—p. 360.
What Your County, State, and National Medical Organization Can Do for You. E. J. McCormick.—p. 362.
Public Relations Responsibilities of County Society. R. W. Waterson. —p. 364.
The Physician, His Wife, and Government. R. B. Chrisman Jr.—p. 366.
The Patient and Proper Function of the Doctor's Office. E. Hess, R. B. Roth and A. F. Kaminsky.—p. 368.
Advising Patients Regarding Travel in Latin America. J. Baker. —p. 371.
*Pleurodynia Outbreak in North Texas. J. A. Risser.—p. 374.

Pleurodynia Outbreak in North Texas.—Risser first recognized pleurodynia in Fannin County of northeast Texas in August, 1951, when a 35-year-old druggist telephoned at 4 a. m. saying that he could not breathe and that he was having a heart attack. Examination revealed a zone of pain with numbness along the right costal margin. Fluoroscopy showed an elevated and splinted diaphragm with no pneumothorax. The heart and pleurae were normal. Intramuscular injection of meperidine (Demerol) gave considerable relief. Another paroxysm of pain along the left costal margin was again accompanied by respiratory distress. A son, aged 3, and a daughter, aged 5, had experienced mild febrile illness with paroxysmal respiratory distress only a few days before. Looking back over records of patients seen in July, Risser found several faulty impressions: herpes zoster without eruption, coronary occlusion without electrocardiographic signs, gallbladder disease without jaundice or stones, and duodenal ulcer without roentgen ray confirmation. In a number of other patients who complained that "it hurts to breathe," he had arrived at no diagnosis, but by Aug. 7, a number of patients with this complaint were observed daily and other local physicians had dealt with similar cases. With the aid of the state health department and of a team of the National Institute of Health, studies were made on specimens of feces, blood, and throat washings. The viruses isolated from the initial group of cases, were Coxsackie B, type 3. Since this agent was isolated from the stools of 16 of 17 selected uncomplicated cases of pleurodynia in which there was evidence of antibody response, it is thought that the Coxsackie B, type 3 virus was the cause of this outbreak. The last classical cases of pleurodynia were seen in October. Counting the misdiagnosed cases of July in addition to those properly called pleurodynia, the author personally examined and prescribed for 128 cases of clinical pleurodynia. The author stresses the extreme contagiousness, pointing out that most laboratory workers who handle the virus succumb to pleurodynia. He also mentions that at the conference on poliomyelitis held in Denmark it was suggested that immunity to "devil's grip" (pleurodynia) viruses might protect against poliomyelitis.

U. S. Armed Forces Med. J., Washington, D. C.

4:795-950 (June) 1953. **Partial Index**

Treponemal Immobilization Test in Diagnosis of Syphilis. F. W. Chorpenning.—p. 807.
Tumors of Anterior Cervical Region. H. C. Spear.—p. 821.
Clinical Review of Thirty Cases of Carcinoma of Pancreas. J. C. Country and R. Foulk.—p. 831.
Psychiatric Social Work in Combat Area. R. W. Morgan.—p. 847.
Vasomotor Rhinitis Syndrome. J. A. Budetti.—p. 857.
*Adolescent Kyphosis. T. E. Dameron Jr. and W. H. Gulledge.—p. 871.
Repair of Traumatic Finger Tip Amputations. J. L. Holmes.—p. 877.
Electrocardiography and the General Practitioner. J. E. Goodman.—p. 889.
Essential Hypertension: Treatment with Hexamethonium and Apresoline. R. P. Shapera and F. R. Lang.—p. 903.
Therapeutic Pneumoperitoneum. E. C. Casey and K. W. Clement.—p. 921.
Myoblastoma of Tongue. J. E. Chipps and G. R. Reinhardt.—p. 925.

Adolescent Kyphosis.—In the course of the examination of 1,000 young men at a recruit-training center, Dameron and Gulledge found 83 with a significant dorsal kyphosis which could not be corrected by active or passive attempt. These men were then studied more closely with a complete history, physical examination, and lateral roentgenograms of the thoracic and lumbar vertebras. Roentgenographic criteria for a diagnosis of adolescent kyphosis were: (1) anterior wedging of two or more thoracic vertebrae, (2) increased anteroposterior diameter of the affected vertebrae, and (3) irregularity of the adjacent vertebral surfaces. Twenty-two of the 83 patients did not have vertebral changes sufficient to justify the diagnosis of adolescent kyphosis, and so there remained 61 among 1,000 healthy young men who had the deformity. Adolescent kyphosis has been discussed also under such terms as Scheuermann's disease, juvenile dorsal kyphosis, and vertebral epiphysitis. Reports suggest that it occurs chiefly in males (70 to 90%). The general health of the patient is usually good and the musculature shows normal development. There may be pain in the area of the kyphosis for a few weeks early in the course of the disease. The deformity, noticed by relatives or friends, is the most frequent complaint. The sixth through the 10th thoracic vertebrae are involved most frequently. The treatment generally recommended is support of the spine by casts, braces, or bed rest to prevent accentuation of the kyphos. Results have been inconclusive. No treatment is indicated after vertebral growth has stopped.

Virginia Medical Monthly, Richmond

80:301-354 (June) 1953

Osler and Welch Founders of Modern American Public Health. H. Williams.—p. 303.
*Duodenal Diverticula. G. W. Horsley and G. J. Vlasis.—p. 313.
Resection Reconstruction of Femoral Head. E. D. Vere Nicoll.—p. 319.
Pancreatitis. J. R. Massie Jr.—p. 322.
Galactosemia. McL. Birdsong and J. B. Wood.—p. 327.
Napoleon's Views on Complications of Childbirth. C. D. Bradley.—p. 330.
Carcinoma of Pancreas—Clinical and Laboratory Observations in 29 Proven Cases. J. O. Burke and K. Plummer.—p. 333.

Duodenal Diverticula.—Horsley and Vlasis review observations on 43 patients with duodenal diverticula seen at a Richmond, Va., hospital during the past 10 years. More of the diverticula occurred on the concave side of the descending duodenum, and the majority of these were false. The incidence of diverticula occurring in each portion of the duodenum in these 43 patients was as follows: in the ascending portion, 12; in the descending portion, 20; in the transverse portion, 3; in the terminal portion, 1; between the ascending and descending portions, 3; between the descending and transverse portions, 1; and between the transverse and terminal portions, 3. There were approximately as many men as women. Five of the 12 patients in whom the duodenal diverticulum was the only lesion were treated by surgical excision and improved subsequently. The remaining patients were treated medically, since the severity of their symptoms did not warrant surgical interventions or they were not suitable candidates for surgery. The remaining 31 had an associated duodenal ulcer, cholecystitis, cholelithiasis, diverticula of the colon, and/or other gastrointestinal disorders. In one case of duodenal diverticula and duodenal ulcer, the diverticula were felt to be the major lesion, and the patient was treated by excision of the diverticula and vagotomy, with relief of symptoms. Once the diagnosis has been established by roentgenologic examination, the question arises whether medical or surgical treatment is required. The symptoms observed oftenest are those either referable to the biliary tract or suggestive of duodenal ulcer. The predominant symptom is pain above and to the right of the umbilicus. The patient may also have headache, nausea, distention, water brash, vomiting, and other symptoms suggestive of biliary dyskinesia. This pattern of symptoms referable to the biliary tract probably results from the fact that usually the diverticulum is in the same segment as the biliary tract. Pressure over the diverticulum may cause radiation of pain posteriorly to the back and/or below the costovertebral angle. The authors feel that surgical treatment is indicated under the following conditions: when the symptoms persist despite conservative therapy; when barium is retained in the diverticulum for four hours or longer; when the diameter is more than 3 cm.; and when the diverticulum contains bezoars. After briefly commenting on the surgical approach, the authors describe two cases in which surgical excision of the diverticulum was followed by improvement.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

61:285-352 (June) 1953

Caudal Anesthesia in Obstetrics with Associated Relaxation Technics. R. N. Rutherford, A. L. Banks, H. M. Lamborn and J. O. Borgen.—p. 285.
Radioactive Colloidal Gold in Carcinoma of Cervix. S. D. Soule.—p. 297.
Anomalies of Stomach and Small Intestine. P. Crabtree.—p. 301.
Combined Physiologic Operation for Peptic Ulcer; (Partial Distal Gastrectomy, Vagotomy and Gastroduodenostomy): Preliminary Report. H. N. Harkins, E. J. Schmitz, H. P. Harper and others.—p. 316.
Lateral Cervical (Branchial) Cysts and Fistulas. S. L. Williams.—p. 319.
Problem of Splenectomy in Diseases of Spleen. II. Splenectomy in "Hypersplenic Syndrome." S. P. Lucia, J. C. Li and M. L. Hunt.—p. 325.
Secondary Amenorrhea: Diagnosed in Charity Obstetrical Clinic. S. M. Martins.—p. 332.
Fertilizing Capacity of Spermatozoa. R. W. Noyes.—p. 342.

Wisconsin Medical Journal, Madison

52:313-372 (June) 1953

Hysteria in Poliomyelitis. M. J. Fox and I. Moskowitz.—p. 313.
Present Concepts of Poliomyelitis: Review of Recent Literature. M. Prouty.—p. 317.
Acute Pneumonia: Appraisal of Six Months' Experience at Veterans Administration Hospital, Wood, Wisconsin. R. Beezy, M. J. Ciccantelli and W. J. Smiles.—p. 322.

FOREIGN

Australian J. Exper. Biol. and M. Science, Adelaide

31:1-104 (Feb.) 1953. Partial Index

Poliomyelitis Virus Pathogenic for Suckling Mice and Monkeys. N. F. Stanley and D. C. Dorman.—p. 1.
*Group A Coxsackie Viruses Isolated from Cases of Poliomyelitis. N. F. Stanley and D. C. Dorman.—p. 9.
Antibodies to Coxsackie Viruses in Pooled Human Serum. N. F. Stanley, D. C. Dorman and J. Ponsford.—p. 17.
Studies on Australian Strains of Coxsackie Virus (Groups A and B). N. F. Stanley, D. C. Dorman and J. Ponsford.—p. 21.
*Hitherto Undescribed Group of Coxsackie Viruses Associated with an Outbreak of Encephalitis. N. F. Stanley, D. C. Dorman and J. Ponsford.—p. 31.
Studies on Intermediary Iron Metabolism. I. Kaldor.—p. 41.
Effect of Foreign Plasma on Capillary Permeability in Unsensitized Animals. B. J. Lake, W. J. Simmonds and A. W. Steinbeck.—p. 55.
Nature of Capillary Damaging Factor in Foreign Plasma. B. J. Lake, W. J. Simmonds and A. W. Steinbeck.—p. 65.

Coxsackie Viruses in Poliomyelitis.—It was demonstrated that Coxsackie viruses were widespread in Sydney during the summer of 1950-1951, when poliomyelitis occurred in epidemic proportions. This paper reports observations on three patients, two paralytic and one nonparalytic, from whom poliomyelitis viruses could not be isolated by monkey inoculation. Coxsackie viruses were isolated from the feces of these three patients. Antibodies to the homologous virus developed in these patients to high titers. One strain of the Coxsackie viruses is related to Dalldorf group A type 4, one to a previously described Australian type (W32) and the third represented a new serological type. It is of interest to determine whether the Coxsackie viruses, isolated from the feces and also responsible for the antibody response, bear any relationship to the disease process or the symptoms (especially paralysis) observed at the time of virus isolation. No attempt has been made to isolate either Coxsackie or poliomyelitis viruses from skeletal muscle of patients, and a Coxsackie virus has not been isolated from human brain or cord post mortem.

Coxsackie Viruses Associated with an Outbreak of Encephalitis.—In the course of epidemiological studies with poliomyelitis and Coxsackie viruses in Australia it became evident that in January, 1952 (midsummer), a dramatic increase had occurred in the number of cases of encephalitis. This communication describes the isolation and properties of a hitherto undescribed infective agent believed to be closely associated with the outbreak. The laboratory examinations of the outbreak were carried out many weeks after its decline. It has not been proved that the Coxsackie viruses isolated were responsible for the outbreak as none was isolated from central nervous system material. The circumstantial evidence (the isolation of one antigenic type of virus from the feces in a large number of cases and the demonstration of antibodies to the virus in the patient's serum in all cases) is such as to indicate a very close relationship. It is realized, however, that the technique of monkey inoculation for the recovery of poliomyelitis viruses is by no means perfect. As this report includes (with the exception of contacts) only hospitalized patients, an incomplete picture of the outbreak is presented. The outbreak seemed widespread in the Sydney metropolitan area, sufficiently so as to cause comments in the lay press, and a sudden rise in antibody in pooled human serum to the virus thought to be responsible for the outbreak. The demonstration of antibodies to the etiological agent in pooled human serum immediately prior to the time when the disease first became clinically apparent may be explained by the assumption that there was an increase in the number of carriers of the infective agent at this time. The infective agent was shown to be present only in the feces. It was filtrable and had some of the properties of the Coxsackie group of viruses. Because all strains tested produced infection only in suckling mice with resulting lesions in the central nervous system, it was assumed that the agent was a Coxsackie virus. All strains isolated differed slightly from the group B Coxsackie viruses and differed markedly from the group A Coxsackie viruses so far isolated. The differences were sufficient to warrant a temporary designation of Coxsackie group C.

British Medical Journal, London

1:1179-1234 (May 30) 1953

Medicine in Time of Queen Elizabeth the First. A. S. MacNalty.—p. 1179.
Medicine and the Crown. E. A. Underwood.—p. 1185.
Medical and Scientific Exploits of King James IV of Scotland. D. Guthrie.—p. 1191.
Bronchiectasis: Study Centered on Bedford and Its Environs. N. Wynn-Williams.—p. 1194.
Effect of Milk Diet on P. Cynomolgi Infections in Monkeys. R. S. Bray and P. C. C. Garnham.—p. 1200.
Milk Diet, p-Aminobenzoic Acid, and Malaria (P. Berghei): Preliminary Communication. F. Hawking.—p. 1201.
Trial of Goats' Milk in Eczema *in Childhood.* D. G. Brown and R. L. Holman.—p. 1202.

1:1235-1290 (June 6) 1953

Facts and Fancies About Cancer of Lung. D. W. Smithers.—p. 1235.
Factors in Mortality of Closed Head Injuries. W. Lewin.—p. 1239.
*Streptomycin Resistance in Patients with Pulmonary Tuberculosis Previously Treated with P.A.S. Alone. F. W. A. Turnbull, A. T. Wallace, S. Stewart and J. W. Crofton.—p. 1244.
Treatment of Primary Pulmonary Tuberculosis with P.A.S. R. McL. Todd.—p. 1247.
Incidence of Black Tongue in Antibiotic Treatment. W. Tomaszewski.—p. 1249.
Renal Tumours. R. Shackman and O. Daniel.—p. 1251.
*Peptic Ulcer in Women. D. H. Clark.—p. 1254.
Case of Granuloma Inguinale in Scotland: Response to Aureomycin. A. G. Fergusson and G. B. S. Roberts.—p. 1257.
Pyrimethamine in Treatment of Vivax Malaria: Preliminary Report. J. Singh, A. P. Ray, P. C. Basu and B. G. Misra.—p. 1260.
Goitre and Hypothyroidism Developing During Treatment with P.A.S. H. T. Davies and H.-J. B. Galbraith.—p. 1261.

Streptomycin Resistance in Tuberculosis Patients Treated with *p*-Aminosalicylic Acid.—In the treatment of pulmonary tuberculosis with streptomycin alone the emergence of strains of tubercle bacilli resistant to the drug is well known. That the same thing happens when isoniazid is used alone is now established, but the possibility of resistant strains emerging when pulmonary tuberculosis is treated with sodium or calcium *p*-aminosalicylate alone has received much less attention. This paper revealed that tubercle bacilli from eight of nine patients who had previously received the sodium salt of *p*-aminosalicylic acid alone for pulmonary tuberculosis were found to be resistant to the drug. The original course of treatment lasted from 6 weeks to 16 months, and the interval between the finish of the course and the resistance tests varied from a few days to 39 months. When treated daily with streptomycin and the sodium salt of *p*-aminosalicylic acid, streptomycin-resistant tubercle bacilli emerged in all the eight patients whose bacilli were resistant to the sodium *p*-aminosalicylate before the start of the combined treatment. The streptomycin-resistant bacilli were obtained in six out of the eight cases within three months on combined treatment, in the seventh after four months, and in the eighth after five months. By contrast a slightly streptomycin-resistant organism was isolated after five months' treatment from only one out of six similar cases whose organisms were sensitive to the sodium salt of *p*-aminosalicylic acid at the start of the combined course. Five of the cases had had no previous treatment with the sodium salt of *p*-aminosalicylic acid alone. It is concluded that tubercle bacilli that are resistant to the sodium salt of *p*-aminosalicylic acid are likely to develop if patients with pulmonary tuberculosis are treated with this drug alone; that the resistant organisms may persist for long periods; and that, if the patients are later treated with the sodium salt of *p*-aminosalicylic acid and streptomycin, the sodium salt of *p*-aminosalicylic acid will then no longer prevent or diminish the emergence of streptomycin-resistant bacilli.

Peptic Ulcer in Women.—Many observers assert that symptoms of peptic ulcer and presumably its activity are influenced by menstruation and pregnancy. The evidence presented here was obtained by interviewing 400 women in whom peptic ulcer had been demonstrated. The ulcer was duodenal in 330 cases and gastric in 70. The patients' ages ranged from 21 to 74 years. The symptoms in most cases were of more than five years duration. Often the patient volunteered some information. If not, the standard questions were asked, "Have you noticed any relationship between your ulcer and menstrual period/pregnancy/menopause? Was your ulcer made better or worse, or did it remain the same?" Apart from paraphrasing these questions according to the patient's understanding of them, no further attempt was made to elaborate a correlation. Of the 400 patients, 291 had had ulcer symptoms before the menopause. In this group 81 noted some relationship between menstruation and ulcer symptoms. In all the symptoms were worse for a few days or a week before the onset of menstruation. In eight the ill-effect persisted during the menstrual period, but none reported increase of ulcer symptoms during the postmenstrual phase. Relief of symptoms occurred in nearly 90% of pregnancies. In most of them the remission occurred early in pregnancy and persisted until term. Those patients who gained no relief had a higher proportion of abnormalities such as albuminuria and hyperemesis. Recurrence of ulcer symptoms was common after parturition especially during the first six months. An unduly large proportion of ulcers start, flare up, or undergo complications at or about the time of the menopause.

Edinburgh Medical Journal

60:249-304 (June) 1953

Treatment of Traumatic Paraplegia in Fractures on Lumbo-Dorsal Spine. I. L. Dick.—p. 249.
Sex-Linked Genes in Man. J. A. F. Roberts.—p. 265.
Case of Amyotrophic Lateral Sclerosis Complicated by Progressive Lipodystrophy. J. Rostowski and J. F. McHarg.—p. 281.
Diabetic Neuropathy. C. H. Davidson.—p. 294.

Harefuah, Jerusalem-Tel Aviv

44:219-242 (May) 1953. **Partial Index**

*Cerebral Hemispherectomy in Cerebral Palsy: Clinical and Electroencephalographic Study. A. J. Beller and M. Streifler.—p. 221.
Myocardial Infarction Due to Coronaritis Following Anti-Diphtheria Serum Injection. Y. Pfeiffer.—p. 225.
*Dangers in Use of Mercurial Diuretics, with Emphasis on Importance of Hypoalbuminemia in Etiology of Complications: Review and Presentation of Case. D. Diengott.—p. 227.

Cerebral Hemispherectomy in Cerebral Palsy.—Hemispherectomy was performed in a 17-year-old girl, who had congenital hemiplegia, frequent epileptic seizures, mental retardation, and aggressive behavior. The girl had been under observation since 1944. She was born after a difficult labor and had generalized convulsive seizures shortly after birth. From the age of 2 years she had had frequent Jacksonian attacks, involving the right half of the body. Anticonvulsive drugs had little effect. Gradually a right spastic hemiplegia developed. In 1945, the left occipital lobe, which harbored a large porencephalic cyst, was excised, but this intervention did not change her seizures, and the left-sided spastic hemiparesis, mental retardation, and aggressive behavior had become severer. Surgical ablation of the left hemisphere was performed in January, 1952, and resulted in complete cessation of the epileptic seizures, alleviation of spasticity in the paretic right extremities, and marked mental improvement. The electroencephalographic records prior to operation showed an area of depressed electrical activity in the left occipital region. There was a zone of impaired electrical activity, displaying irritative features in the left posterior parietal and posterior inferior temporal regions. Hemispherectomy brought about normalization of the electrical activity of the remaining right hemisphere. A short time later, electrical brain rhythms could also be recorded from the left half of the skull. This activity, of low amplitude at the beginning, increased gradually, finally approaching the voltage of activity of the right hemisphere. It is suggested that the sources of this activity are the remaining basal ganglions, particularly the optic thalamus of the extirpated left hemisphere.

Hypoalbuminemia in Complications Resulting from Mercurial Diuretics.—This paper discusses various complications that may result from the use of mercurial diuretics such as loss of minerals, chlorides and water, attacks of gout, renal complications, thromboses, agranulocytosis, and avitaminosis. Reported cases of death after intravenous use of mercurial diuretics are reviewed. Summary of clinical and experimental evidence suggests direct toxic action of the mercury on the myocardium. Four additional cases (two of them fatal) of toxicity due to mercurial diuretics are presented. In these cases toxic manifestations followed immediately after intravenous injection and were apparently caused by direct action on the myocardium. A common factor in all four cases was hypoalbuminemia. Since hypoalbuminemia is noted, or can be inferred, in a large proportion of cases of sudden death after intravenous use of mercurial diuretics, it is suggested that hypoalbuminemia may predispose to such accidents.

Journal of Laryngology and Otology, London

67:301-376 (June) 1953

Rhythmic Palatal Myoclonus with Report of Four Cases. D. L. Chadwick and R. Macbeth.—p. 301.
Myringitis Bullosa Haemorrhagica Its Relationship to Otogenic Encephalitis and Cranial Nerve Paralyses. J. D. K. Dawes.—p. 313.
Modern Developments in Pure Tone Audiometry and Their Application to Clinical Diagnosis and End-Organ Deafness. M. R. Dix and J. D. Hood.—p. 343.
Some Imperfections of Free-Field Voice Tests. P. F. King.—p. 358.

Journal Neurol., Neurosurg. & Psychiatry, London

16:59-126 (May) 1953

Prodromes to Cortical Localization. G. Jefferson.—p. 59.
Studies in Traumatic Epilepsy: 2. Focal Motor and Somatic Sensory Fits: Study of 85 Cases. W. R. Russell and C. W. M. Whitty.—p. 73.
Deposits of Fluorescent Acid-Fast Products in Nervous System and Skeletal Muscles of Adult Rats with Chronic Vitamin-E Deficiency. L. Einarson.—p. 98.
An Extremely Rare Recessive Hereditary Syndrome Including Cerebellar Ataxia, Oligophrenia, Cataract, and Other Features. H. Garland and D. Moorhouse.—p. 110.
Radiological Appearances of Agenesis of Corpus Collosum. P. Sheldon and A. Peyman.—p. 117.

Lancet, London

1:1109-1160 (June 6) 1953

Treatment of Whooping-Cough with Antibiotics: Report by Whooping-Cough Subcommittee of Antibiotics Clinical Trials (Non-Tuberculous Conditions) Committee of Medical Research Council.—p. 1109.
Familial Cretinism. D. Hubble.—p. 1112.
Radioactive-Iodine Studies in Non-Endemic Goitrous Cretinism. E. M. McGirr and J. H. Hutchison.—p. 1117.
*Peripheral Blood Picture After Operation for Portal Hypertension. A. J. S. Macpherson and J. Innes.—p. 1120.
Experimental Electrocardiography of Foetus. C. N. Smyth.—p. 1124.
Erythema Multiforme Exudativum Major (Stevens-Johnson Syndrome). D. M. Davies.—p. 1126.
Stevens-Johnson Syndrome Treated with A.C.T.H. W. G. D. Caldwell. —p. 1127.
Stevens-Johnson Syndrome: Report of Case. P. W. Grant.—p. 1129.

Blood Picture After Operation for Portal Hypertension.—This report is concerned with hematological problems of the syndrome of portal hypertension. Observations in 46 cases of portal hypertension treated either by splenectomy alone or by splenectomy and splenorenal anastomosis indicate that the persistent leukopenia and thrombocytopenia found in this syndrome are rapidly relieved by splenectomy. These findings suggest a relationship between the levels of the leukocytes and platelets in the peripheral blood and enlargement of functional overactivity of the spleen, and is, in accordance with the hematological concept of "hypersplenism." Portacaval anastomosis without splenectomy was done in seven cases of portal hypertension. In three of these, the spleen became smaller from relief of venous congestion, but the pulp hyperplasia persisted, and in no case was the blood picture improved. The effects of ligation of the splenic arterial supply by various operations were observed in five cases. The spleen did not decrease in size after any of these operations. Histological examination of the spleens of three patients in whom the splenic artery had been ligated and divided 15, 18, and 28 months previously, showed either the typical changes of portal hypertension or complete localized infarction. The generalized atrophy of splenic tissue described by other workers was not observed. After splenic arterial ligation no improvement was noted in the blood picture except in one case in which there was extensive infarction of the spleen. Neither relief of portal venous congestion by a portal-systemic venous anastomosis nor reduction in the blood supply to the spleen by arterial ligation improves the leukopenia or thrombocytopenia characteristic of portal hypertension. In contrast the changes can be regularly relieved by splenectomy. Hence it may be inferred that the reduction in the leukocytes and platelets is directly related to some influence derived from the cellular components of the enlarged spleen. In no case was there any evidence that any of the operations benefited the red blood cell and hemoglobin levels other than by control and prevention of esophageal bleeding.

Medical Journal of Australia, Sydney

1:609-648 (May 2) 1953. Partial Index

The Nervous Child. H. M. North.—p. 612.
Anti-Globulin Sensitization Test as Applied to Brucella Infection: Preliminary Report. A. A. Ferris, W. J. Stevenson and F. A. Lewis. —p. 619.
Hyperplastic Cystic Disease of Breast, with Review of 199 Case Records. J. M. Yeates.—p. 621.
*Role of Nervous Factors in Causation of Peptic Ulceration. B. Robinson. —p. 624.

Causation of Peptic Ulceration.—Robinson traces pathways from various parts of the cortex to the gastric mucosa, suggests mechanisms through which they may affect it, and considers changes that may set these mechanisms into pathological action. Many peptic ulcer patients are outwardly aggressive, ambitious and independent, refusing help and burdening themselves with all kinds of responsibilities. The more they strive for independence and responsibility, the stronger is the unconscious desire to be cared for and to return to the oral stage. Food is then wanted not to satisfy hunger but as a symbol for love and help. This explains also the relief derived from treatment in hospital, as there the patient is able to shed his responsibilities and acquire by way of a seemingly legitimate, socially acceptable compromise, the care, help, attention and security he craves. There seems no doubt that the accepted methods of treatment with rest, sedation, antacids, atropine and diet must be followed during active phases. However, this alone is inadequate. The symptoms must be considered only as indicators of the underlying personality disturbance and continued attention to them will only fix them and contribute to their perpetuation. Time must be spent in the elaboration of the social history and in discovering the patient's attitude towards his environment. Organic nervous lesions are rare in peptic ulceration, but psychological deviations are common and are related, in part at least, to the importance of the alimentary system to the emotional life of the individual. Psychotherapy is a most useful preventive measure during the period of functional symptoms preceding the development of the ulcer and is an essential component of treatment when it is established.

Minerva Chirurgica, Turin

8:181-260 (March 31) 1953. Partial Index

Use of Retropneumoperitoneum as Preparation to Interventions on Rectum, Colon, and Retroperitoneal Organs. G. Bertini.—p. 194.
Collateral Circulation After Ligation of Hepatic Artery at Its Point of Origin. A. Bertocchi.—p. 199.
*Pathology and Treatment of Simple, Acute, and Chronic Pneumothorax. L. Biancalana and A. E. Paletto.—p. 209.

Pathology and Treatment of Various Forms of Spontaneous Pneumothorax.—Simple spontaneous pneumothorax appears suddenly in apparently healthy persons, the lesions responsible for it being generally asymptomatic at the time of the onset. This type of pneumothorax has a benign and afebrile course without formation of exudate and usually heals spontaneously. The causative factors of the attack are in most cases ruptured subpleural cysts and localized blebs and bullae. Often the lung expands again; when it does not the condition becomes chronic. The factors which account for the failure of the lung to reexpand are persistence of a bronchial fistula because of a ruptured congenital cyst, intrapleural adhesions, pulmonary and bronchial scar tissue, and often empyema and hemothorax. The acute form of spontaneous pneumothorax is characterized by pain in the chest and a severe dyspnea, making a correct diagnosis easy. The exact cause of spontaneous pneumothorax is best established by thoracoscopy, intrapleural pressure measurements, and bronchography. Bronchoscopy is usually of no diagnostic help. Since cysts and blebs may represent the preparatory phase of a simple spontaneous pneumothorax, their early diagnosis and treatment may prevent the onset of the pneumothorax. Bed rest is the best treatment for simple and acute pneumothorax, but it is ineffectual in chronic cases. The two main types of treatment for chronic pneumothorax are artificial pleurisy produced by irritants introduced into the pleural cavity and surgical procedures. Various types of irritants (including guaiacol, iodoform, iodized oil, dextrose solutions, and silver nitrate) have been placed into the pleural cavity to produce a violent pleurisy accompanied by pleural effusion and fibrin deposition. These close the aperture in the parenchyma, which then expands again. This conservative method is painful and has a severe effect on the patient's general condition, since it causes fever and greatly impairs his respiratory function because of the ensuing fibrothorax. For this reason surgical treatment is preferred. Phrenic paralysis was introduced by Weiss to relax the diaphragm and decrease the tension of the lung and thus permit the pulmonary aperture to heal. The results were not successful. Today chronic pneumothorax is treated either by thoracoscopy or thoracotomy. The latter is the treatment of choice. It is contraindicated only in the presence of bilateral bullae, and in this case induction of pleurisy is the best treatment.

Presse Médicale, Paris

61:787-804 (June 3) 1953

Gynecomastia. L. de Gennes, H. Bricaire and J.-M. Guiot.—p. 787.
*Physiological Correction of Certain Factors of Asthmatic Terrain by Treatment with Pancreatic Extract. D. Santenoise, F. Claude, M. Fontan and M. Roche.—p. 790.
Problem of Diet in Diabetics. Evolution of Physiopathological Concepts. Therapeutic Conclusions. H. Lestradet.—p. 792.
Physiobiological Study of Acclimation Syndrome. A. Cuénot and H. Laborit.—p. 796.
Cutaneous Tuberculin Hypoergy and Anergy. M. Fourestier and A. Blacque-Belair.—p. 799.
*Combined Antibacillary Medications in Treatment of Pulmonary Tuberculosis. E. Bernard, N. Rist and B. Kreis.—p. 802.

Physiological Correction of Asthmatic Terrain.—Patients with asthma have certain functional disturbances predisposing them to acute attacks. These disturbances include an almost constant reduction in the biochemical excitability of the respiratory centers, the very frequent existence of reflex hyperexcitability of the sympathetic centers, especially the vasopulmonary sympathetic centers, and in some cases a reduction in the respiratory capacity of the blood. Excellent therapeutic results have followed the physiological correction of these disturbances with centropneine, a hormone recently isolated from the pancreas. Careful study of 200 patients with asthma treated by this method showed substantial improvement in 161; attacks were either suppressed or reduced in intensity or frequency. The product used in treating these patients, however, was not entirely free from vagotonin, and it was noted that the greater the amount of vagotonin present, the less satisfactory were the results. Further work culminated in the production of a vagotonin-free preparation of centropneine. The effect of this refined preparation was studied in a series of 142 men, women, and children with varying types of asthma. Adults were given from 10 to 30 respiratory units of centropneine before each of three meals; for children, the dose was reduced to from 5 to 10 units. Significant improvement was observed in 125 patients treated for periods of from two weeks to six months; asthmatic attacks, latent oppression, dyspnea on effort, and cough disappeared completely in 40. Several weeks and sometimes months of regular and continuous treatment are usually needed for modification of the asthmatic predisposition. Prolonged treatment presented no difficulty because centropneine, when free from vagotonin, is well tolerated. Treatment was unsuccessful in 17 patients, 7 of whom had severe, inadequately treated respiratory infections. Immoderate use of sympathicomimetic drugs and those depressing the respiratory centers was apparently responsible for failure in eight cases; in two others, predominance of an allergic factor led to partial failure. Supplementary treatment with antibiotics or vaccines and, especially, mineral waters rich in sulphur, may prove highly advantageous.

Combined Antibacterial Medication in Pulmonary Tuberculosis.—The effectiveness of the combined treatment of pulmonary tuberculosis depends primarily on the efficacy of the most active drug in the combination. The belief that the efficacy of one drug is increased by the presence of another is not borne out by either laboratory or clinical tests; the synergistic effect obtained is due to the fact that the supplementary drug affects bacteria that would otherwise be left untouched. The use of drugs in combination is chiefly beneficial because it delays or prevents the development of drug-resistant strains of bacilli, thus making prolonged treatment possible and increasing the chances of cure. These results can only be obtained when the drugs to which the bacilli are sensitive are given together from the beginning of the treatment and *in doses that would be effective for each alone;* dosage should never be reduced because the drugs are combined. The advantages of the combined treatment are particularly apparent in the highly bacilliferous forms of tuberculosis in which resistance to a single drug develops rapidly.

Schweizerische medizinische Wochenschrift, Basel

83:483-506 (May 23) 1953. **Partial Index**

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Transmission of Hepatitis by Blood and Plasma Transfusions.—Of 189 patients who were given transfusions of whole blood in 1950 and 1951, only 1 had icterus within six months after the transfusion. The risk of hepatitis following infusion of whole blood is small and is probably far below 1%. The blood of seven donors who had jaundice one to five years before was tranfused to eight recipients. The blood of additional 77 donors who had had jaundice five or more years before they donated blood was transfused to 92 recipients. None of these 100 recipients had hepatitis within six months after the transfusion. Although the number is too small for definite conclusions, these figures suggest that convalescent carriers are of little importance in transmission of hepatitis. The management of the blood donor service of the Swiss Red Cross decreed in 1952 that any person who had once had jaundice should be excluded from its donor service. Although this resolution means an average 8% loss of blood donors, the authors agree with it because it is well established that some persons are carriers of hepatitis virus for several years and the question of the average duration of carrying convalescent virus has not been answered. If for some reason it should not be possible to exclude donors who once had had jaundice, their blood should be used only for single transfusions but not for the production of a pooled plasma. Of 189 patients admitted to the City Hospital of Basel who had been given 362 transfusions of dried plasma and 516 transfusions of whole blood, 8 had inoculation hepatitis for which the dried plasma was held responsible. The incidence of hepatitis with respect to the number of recipients was 4.2%, and with respect to the number of administered dried plasma units 2.2%. Of 90 recipients of 135 dried plasma units who did not receive whole blood, 4 had epidemiologically established inoculation hepatitis caused by dried plasma. The incidence of hepatitis with respect to the number of recipients, was 4.4% and with respect to the number of administered dried plasma units 2.9%. Of 126 plasma pools, 4 were definitely icterogenic and 2 others possibly were. Since none of the donors who had contributed to the plasma pools had had icterus, it may be assumed that healthy carriers rather than incubation virus carriers played the most important part in the contamination of the plasma pools with hepatitis virus. The conclusion for the practitioner is that pooled plasma should be employed only in cases in which because of the gravity of the patient's condition the risk of late damage caused by inoculation hepatitis appears to be insignificant as compared to the expected therapeutic usefulness of the pooled plasma.

Semaine des Hôpitaux de Paris

29:1533-1586 (May 10) 1953

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*Clinical and Prognostic Value of Electrocardiography in Treatment of Subacute Infectious Endocarditis. E. Donzelot, J. M. le Bozec, H. Kaufmann and J. Laham.—p. 1540.
Immediate and Long-Term Prognosis of Subacute Infectious Endocarditis. E. Donzelot, H. Kaufmann, J. M. le Bozec and J. E. Escalle. —p. 1544.
*Clinical and Physiopathological Considerations in Treatment of Angina Pectoris with Heparin. E. Donzelot, H. Kaufmann and J. M. le Bozec. —p. 1549.

Electrocardiography in Subacute Infectious Endocarditis.—Electrocardiograms made routinely before, during, and after treatment in a series of 200 patients with subacute infectious endocarditis were studied to determine their diagnostic and prognostic value. A diagnosis of subacute infectious endocarditis was rarely established when auricular fibrillation or acquired valvular heart disease affecting the right side of the heart was reflected in the electrocardiograms; acquired heart disease affecting the left side of the heart, on the other hand, was frequently complicated by subacute infectious endocarditis. Signs of acute cor pulmonale and myocardial impairment appearing in electrocardiograms made during treatment often presaged irreversible heart failure. Electrocardiographic changes are most pronounced in resistant cases and those in which treatment is late. The abacterial forms of the disease show a preponderance of changes; in electrocardiograms made before treatment was started, cardiac insufficiency was found in 15% of the patients with negative blood cultures as compared with 4.5% of those with positive blood cultures, while during treatment heart failure occurred in 22% of the patients with negative cultures and in only 11% of the others. Bundle-branch block and coronary impairment predominate in patients with aortic involvement, possibly because the severe, primary forms of subacute infectious endocarditis are almost always localized in the aortic valves. The principal changes in patients with mitral involvement are those indicative of acute cor pulmonale and, later, auricular fibrillation. Fear of possible complications must not be allowed to interfere with the use of penicillin, which offers the only hope of cure.

Treatment of Angina with Heparin.—Study of 53 patients, most of whom have been followed for a year, shows that attacks of pain can be suppressed by the intravenous injection of a very small dose of heparin (e. g., 25 mg.) in about 70% of patients with angina pectoris. Improvement was secured in nearly 100% of those with typical angina occurring on effort and relieved within about 5 minutes by glyceryl trinitrate; the results in patients with bundle-branch block or a sequela to myocardial infarction whose chest pain was not clearly connected with effort or clearly relieved by glyceryl trinitrate were less satisfactory. Patients who respond promptly to glyceryl trinitrate are almost always benefited by heparin; when glyceryl trinitrate is ineffective, heparin treatment is not likely to be successful. The same patients benefit by both remedies, but glyceryl trinitrate is an emergency treatment to be used during an anginal attack, while heparin is a basic treatment applicable to the anginal state. The efficacy of heparin is greatest when the anginal attacks are clearly due to effort; patients in whom they are related to emotion also prove responsive to its action. Atypical pain accompanied by vasomotor phenomena of the kind found mostly in hypertensive patients is not affected by either heparin or glyceryl trinitrate. Three patients with calcified aortic stenosis who had for a long time had frequent attacks and who required several glyceryl trinitrate tablets daily were benefited by heparin to such an extent that within the first days of treatment glyceryl trinitrate became unnecessary. The effectiveness of heparin treatment does not seem to be dependent on the blood picture; excellent results were obtained in a patient in whom hypocoagulability was pronounced, and sustained relief of anginal attacks were secured in another patient with persistent hypercoagulability. Patients receiving heparin must follow the usual tranquil regimen, even in the absence of attacks; although their tolerance for exertion is increased, a severe attack may be produced by any unusual effort. Improvement is usually constant as long as the injections are continued, but anginal attacks recur when treatment is suspended even after a period of several months. Failure of heparin to produce good results within three weeks indicates that the dose should be changed; addition of another drug, such as ethyl biscoumacetate (Tromexan ethyl acetate), may also prove advantageous. Laboratory studies showing that the effects of heparin injection are antagonistic to those of sympathetic excitation suggest that the action of heparin, though exerted at a different level, is similar to that of the sympathicolytics. Heparin apparently influences the humoral effects of nervous excitation, while the sympathicolytics tend to suppress the excitation itself.

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Tumors of Small Intestine.—Faber and his associates described 45 cases of tumor of the small intestine in patients aged between 40 and 70. Fifteen tumors were benign, 10 were sarcomas, 9 of which were apparently primary in the small intestine and one presumably metastatic, and 20 were carcinomas. While the benign tumors and sarcomas were usually distributed throughout the small intestine, the carcinomas showed a marked tendency to occur at the ends of the intestine. In 12 cases there were no symptoms until an acute abdominal catastrophe occurred, in 11 an acute abdominal crisis occurred after symptoms of some duration, in 12 the symptoms were those generally seen in tumors elsewhere in the gastrointestinal tract, and in 9 cases the only sign was bleeding, either typical melena or occult with anemia. The prognosis for tumors of the small intestine has greatly improved in recent years. Careful examination including vaginal exploration and roentgen examination of the small intestine as a rule gives the diagnosis. If the results were negative and particularly if occult bleeding continues, exploratory laparotomy is necessary.

Wiener klinische Wochenschrift, Vienna

65:369-452 (May 15) 1953. **Partial Index**

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Thoracoplasty or Pneumonolysis. A. Kenner.—p. 376.
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Irradiation Therapy of Carcinoma of the Breast.—Between 1937 and 1947, 580 women and 2 men with carcinoma of the breast were given irradiation treatment at the central roentgen institute of the Vienna-Lainz Hospital. Of these, 234 with stage 1 to 3 carcinoma, according to Steinthal's classification, were given intensive local irradiation between 1937 and 1945 (first period of treatment), 273 with stage 4 carcinoma (generalized carcinosis) were given small dose-irradiation treatment of the entire body between 1938 and 1947 (second period of treatment), and 75 patients with stage 1 to 3 carcinoma received combined intensive local irradiation and prophylactic irradiation of the entire body between 1945 and 1947 (third period of treatment). In patients with carcinoma of stage 1 to 3 treated during the first period, the technique of fractionated local irradiation consisted of the usual three field-irradiation with 175 kv., 6 ma., 0.5 mm. Cu plus 1 mm. aluminum filter at a distance of 40 cm., a field dose of 240 r, each field repeated seven times, one field daily, with a total serial dose of 5040 r surface. Irradiation treatment was instituted on the third postoperative day. The local series were not repeated. Of the 234 patients of the first irradiation period 117 (50%) obtained a five year cure. In the 273 patients with stage 4 carcinoma treated during the second period, a permanent cure could not be expected as a result of the irradiation therapy; despite that, an average survival time up to two years with working capacity maintained in the complete or nearly complete absence of pain, was obtained by entire body-irradiation with alternating posterior and anterior entire body-fields, 175 kv. at the tube, 4 ma., 0.5 mm. Cu plus 1 mm. aluminum filter, at a distance of 150 cm., with a dose of 24 r per single session. A series consisted of 10 single sessions. The interval between two series varied from three months to four weeks according to tolerance. Of the 75 patients treated during the third treatment period, 39 (52%) obtained a five year cure. This increased ratio of five year recoveries was obtained by the combined treatment with local irradiation (seven times 240 r) and an entire body-irradiation series of 10 times 24 r with alternating anterior and posterior fields two months after the last local irradiation and repeated twice at six week intervals.

Irradiation Treatment of Cancer of Uterine Cervix.—Between 1937 and 1946, 1,410 women with carcinoma of the uterine cervix were examined at the irradiation department of the Vienna-Lainz hospital. Only 1,048 received complete irradiation treatment, while the large number of 362 patients did not, because of the political events and the war occurring during the reported period. Of the 1,410 patients, 56 had stage 1 carcinoma of the cervix uteri according to the classification of the 1937 committee of the League of Nations, 139 stage 2, 875 stage 3, and 340 stage 4. Treatment consisted of near-radium irradiation and radium irradiation at a distance of 6 or 10 cm., depending on the location of the tumor. The near-radium irradiation was carried out according to Forssell's principle, with capsule-shaped vaginal applicators equipped with 80 mg. radium element and with an intrauterine probe equipped with 40 mg. radium element. This treatment was practiced in three stages, i. e., vaginal application for 30 hours, repeated for 24 hours after an interval of 14 days, and followed by treatment with the intrauterine probe for 72 hours after a second interval of 14 days. Radium treatment at a distance of 6 cm. was given with 6.93 r per minute at the skin surface and at a distance of 10 cm. with 3.4 r per minute. Four field-irradiation was used; one field received on the average at the distance of 6 cm. a total dose of 12,500 r in 30 hours. Half of the surface dose was obtained with the 6 cm. distance and a 3 cm. depth or with a distance of 10 cm. and a 4 cm. depth. One field was irradiated daily for two hours, so that the total duration of treatment varied from six to eight weeks, and the lateral parametriums received a total dose of approximately 2,000 r. Of the 1,048 patients who have completed their treatment, 276 were symptom-free for five or more years, i. e., a relative average recovery rate of 39.2% in the four stages of the disease. This recovery rate was somewhat smaller than that of 41.7% obtained during the period of 1935 to 1938; the less favorable results were due to the war and undernourishment. The results obtained with irradiation therapy for carcinoma of uterine cervix at the Vienna-Lainz hospital correspond with those obtained at other large irradiation institutes according to Heymann's annual report of 1951. Satisfactory results did not depend only on treatment but also on the periodic control of the patients once treated and on the general care they had received. The combination of all favorable factors promise a successful campaign against carcinoma of the uterine cervix.

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BOOK REVIEWS

Atlas of Medical Mycology. By Emma Sadler Moss, B.S., B.M., M.D., Director, Department of Pathology, Charity Hospital of Louisiana at New Orleans, and Albert Louis McQuown, B.S., B.M., M.D., Pathologist, Our Lady of Lake Sanitarium, Baton Rouge, Louisiana. Cloth. $8. Pp. 245, with 248 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1953.

This book does not constitute a major contribution to the literature of medical mycology. It does, however, constitute, particularly for the uninitiated, a useful volume, because of the number of pictures included and, in some instances, their high caliber. The text of the book appears to have been drawn from other more lengthy texts or manuals in the field and actually constitutes a synopsis. The subject is dealt with in terms of the diseases that fungi produce; consequently there is little continuity or over-all plan. A more constructive approach would have been an adequate verbal consideration of the field joined with the excellent pictures that are presented. The field is at present in need of an adequate reference of this type, but the present book does not answer this need. The subject immunology of fungi could bear much more extensive treatment, as could the basic biology of the organisms themselves. The book does seem to be adequate, although far from complete, in considering the clinical aspects of the individual diseases presented.

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Additional measures are rest in bed with a nonsagging firm mattress until pain, tenderness, and muscle spasm have subsided. The spine should be kept hyperextended to minimize the strain of the spinal ligaments and to obtain optimum chest expansion. This is usually achieved by removing the pillows from under the head. If this procedure fails, a plastic jacket is indicated. Deep breathing exercises are extremely important in order to prevent the costovertebral joint from becoming fixed. Forced deep breathing should be practiced by the patient several times daily for five minute periods. Heat in the form most comforting to the patient should be applied three or four times daily.

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the second for one hour. Again, however, the time required depends on the size of the specimen. After the tissue is embedded and cut, the slides can be dried in an oven for several hours, stained, and interpreted the same day.

NODULES IN TENDONS OF HANDS

To the Editor:—*A patient, 52 years of age, has a nodule tendonitis involving the palm of the right hand over the head of the fifth metacarpal bone. An orthopedic surgeon advised that no surgery be done at this time, unless a trigger finger develops. Is x-ray therapy of value in this type of trauma? Leonard B. Fauquier, M.D., Jersey City, N. J.*

Answer.—The occurrence of nodules in the tendons of the hand is fairly common, especially during an attack of chronic rheumatoid arthritis. They are not usually treated surgically, unless a painful trigger finger results. X-ray therapy is often helpful.

REMOVAL OF PERMANGANATE STAINS

To the Editor:—*What will remove potassium permanganate stains from glass urethral syringes?*

Charles H. Codelle, M.D., New York.

Answer.—The brown stains result from manganese oxide deposits formed when potassium permanganate comes in contact with organic matter. They may be removed by soaking of the syringe in a strong mineral acid (sulfuric or hydrochloric) or in a fresh solution of nitrous acid prepared by the addition of sulfuric acid to a nitrite in a cold atmosphere. Care must be exercised to prevent inhalation or exposure of the eyes and skin to the highly toxic fumes. The acid solutions are extremely corrosive and will remove the enamel from graduations on the syringes.

SYSTOLIC "CLICKS"

To the Editor:—*I have observed for the past two years a 35-year-old man who has sharp precordial pain that is unrelated to effort and that lasts less than a second. Electrocardiograms, chest roentgenograms, and results of cardiac examination have always been normal. The only unusual thing has been the presence of a clicking (not split) second heart sound, heard over the precordium but loudest in the mitral area. Please explain the significance of this sound.*

Harold L. Scales, M.D., Teaneck, N. J.

Answer.—The second heart sound is produced by closure of the aortic and pulmonary valves and is, therefore, loudest at the base of the heart. The origin of systolic "clicks" is uncertain but is probably extracardiac. The sounds are often noted in patients with normal hearts. They are always louder at or are confined to the apex and are most clearly heard when the patient is recumbent. The patient in question probably has such an extracardiac sound late in systole, which is loud enough to mask the second sound. This has no pathological significance and cannot be related to the patient's symptom of chest pain.

CEREBRAL COMPLICATIONS OF RUBELLA

To the Editor:—*I have encountered a case of rubella (not rubeola) encephalitis. What is the proper treatment? Is any antibiotic of value?*

K. Clippinger, M.D., Covington, Ohio.

Answer.—There is no specific treatment for the cerebral complications of rubella (German measles). All treatment is symptomatic. Strict bed rest is important throughout the acute stage of the illness. Chloral hydrate, paraldehyde, or intramuscularly administered phenobarbital sodium can be used for the restlessness. The use of opiates should be avoided. If urinary retention or incontinence is present, an indwelling catheter should be employed, with small doses of sulfonamides. Adequate nourishment must be maintained. If the patient is comatose, glucose and amino acids should be given intravenously; if not in deep coma, tube feeding may be employed. Recovery is usually fairly rapid and complete. There are no new drugs or antibiotics that are helpful in this condition.

PENICILLIN REACTIONS

To the Editor:—*Will the addition of an antihistaminic to parenterally administered penicillin control the occurrence of sensitivity reactions due to the penicillin?*

M.D., California.

Answer.—The addition of an antihistaminic drug to penicillin for parenteral administration will not prevent the occurrence of sensitivity reactions. Administration of antihistaminic drugs after the development of skin rashes due to penicillin sensitization will decrease, sometimes markedly, the pruritis that develops, but the other manifestations of the reaction, such as rash or joint pains, fever, and lymphadenopathy in the severer cases are not affected to any appreciable degree by the drug. No other substances are known that will decrease the reactivity to penicillin in patients in whom a sensitivity to this agent has developed. It is important to point out that not all such sensitive persons will react every time they receive penicillin; in some instances, readministration of the drug to a previously sensitive person will not provoke a second allergic reaction. In some patients, not all, sensitivity to penicillin G is not accompanied by allergy to penicillin O; in these cases the latter agent can be given if there is fear of a dangerous reaction to penicillin G. It is possible, however, for patients to become sensitive to penicillin O, and some persons are allergic to both types of the antibiotic.

ASTHMA AND ODORS OF PAINT

To the Editor:—*A man, 30, recently had his first attack of bronchial asthma. He works in a paint and varnish factory as a shipping clerk. There is no history of asthma. He had rheumatic fever at age 11. Physical examination reveals a boggy nasal mucosa and tearing of the eyes. Examination of the heart was within normal limits. The lungs appear normal except during the asthmatic attacks. The blood pressure is 130/70 mm. Hg. A blood cell count revealed eosinophilia, 6%. The patient responded to antiallergic medication, and since he has stopped working his asthma has improved. Could you suggest diagnostic procedures that would aid in establishing the allergen precipitating this patient's bronchial asthma?*

E. Edward Benzier, M.D., Rego Park, N. Y.

Answer.—The odors of paint and varnish frequently incite attacks of asthma. In the majority of such instances they act as irritating vapors that can produce an attack in the presence of a separate allergic factor. Thus they behave like coal smoke, gasoline fumes, and other irritating gases. However, it is also possible that the patient is exposed in his occupation to specific allergy-producing substances. Among such possible causes are linseed products. These allergens as well as others should be employed in testing this patient. The safest procedure would be the scratch test.

SIMULTANEOUS ADMINISTRATION

To the Editor:—*In the Queries and Minor Notes, in "Simultaneous Administration"* (The Journal, *May 16, 1953, page 296), a subscriber raised the question of the safety of administering 5% glucose in sodium chloride and citrated whole blood simultaneously. The answer given was that this procedure was safe provided the solutions were isotonic. I should like to suggest that this answer is incomplete. The effect of exposure of human red blood cells to 5% dextrose is immediate swelling of the cells because of imbibition of water. This can be of sufficient magnitude to cause varying degrees of hemolysis. This effect is more pronounced in stored blood than in fresh blood, since a constant characteristic of refrigerated red blood cells is a decrease in osmotic resistance. The type of procedure mentioned should be reserved for extreme emergencies, since it will undoubtedly lead to varying degrees of intravascular hemolysis of the transfused cells.*

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PSYCHIATRIC SERVICES IN GENERAL HOSPITALS

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Grouping patients with similar diseases and then separating these groups from each other has long been useful and effective in medical practice. Sometimes these groupings have been made on wards or services of hospitals, and sometimes there have been specialized hospitals. With increased understanding of illness, it has been shown in many instances that the degree of segregation and specialization once thought necessary is no longer required; in fact, coordination and consultation become increasingly difficult if specialization is carried too far. Increasingly we see the development of general hospitals that are organized so that they can treat the full range of human ailments through well-planned construction and organization of services. A good example of the reduced use of specialized hospitals is in the field of infectious disease. Medical knowledge now makes it possible to handle the problems of infectious diseases without risk to others in a general hospital. This same trend is making itself strongly felt in the field of psychiatry.

I have had two kinds of experience as a staff member of general hospitals. Before entering the field of psychiatry, I was an attending physician on the staff of the Charles F. Wilson Memorial Hospital in Johnson City, N. Y., for seven years. For 10 years prior to coming to Wisconsin, I was psychiatrist on the staff of the Edward J. Meyer Memorial Hospital in Buffalo, and, for 5 years, I was in charge of the psychiatric service in that 1,000 bed county general hospital. Since the trend toward development of psychiatric services in general hospitals is increasing and appears to be highly desirable, the following ideas derived from my experience are offered for consideration.

PATIENTS

The greatest increase in persons hospitalized for psychiatric care has been among old persons. The problems of these patients are (*a*) organic changes and (*b*) family and social relationships. The role of the general hospital in this field is unquestioned. The further need is for development of total geriatric programs in which increasing hospitalization can be linked with other services to the aged. This service to older persons does not functionally belong in state hospitals, although patients in that group represent about 50% of the admissions across the country. Care of the aged requires consideration of homes and infirmaries for such persons and provision for care of the chronically ill.

Hospitalization of younger psychiatric patients has not, in my opinion, materially increased. I believe that developments in family life, child care, education, and social opportunity are already reducing the number of very severe personality casualties. Methods of treating those that do occur are improving, so that the old defeatist and custodial concepts of hospitalization are disappearing. With rare exceptions, such patients can be managed, if conditions are appropriate, under general hospital conditions. Such hospital conditions must be functionally designed for the purpose; such is not always the case at the present time in the units that do exist.

TYPES OF DISORDERS

There is a great increase in the number of patients whose personality reactions are not of major dimensions but who are being brought under medical care. These personality reactions occur in diverse forms: frank anxiety phenomena, marked tension, psychosomatic manifestations, acute interpersonal difficulties, and excessive drinking. The presence of specialized hospitals indicates that a sorting-out process has already taken place. The great need in the care of persons with minor disturbances is for a sorting-out process that defines the underlying personal problems and then proceeds to deal with them on their merits. A general hospital is a far more effective place to develop such services than a specialized institution.

Modern psychiatry is essentially the personal aspect of medical practice. Personal, family, and social problems enter into the illnesses and handicaps that are dealt with every day in the general hospital. Reactions of patients to illness and invalidism come within the scope of the physician's responsibility in caring for patients. In this modern sense, psychiatry permeates medical practice and, so, does not lend itself to an arbitrary separation from general medical care.

Medical students in recent years have obtained much more education in personal problems of patients than in years gone by. Many older physicians are self-educated and effective in the field. Others, who find themselves very limited by their meager preparation for this type of work, develop a strong "organic bias" in their clinical approach. Younger physicians, accordingly, are on the alert for personal factors that contribute to patients' symptoms and illnesses, and they do not go to extremes to try to prove an illness is organic before they look into personal and family situations. All diagnosis should be positive, even though some factors of exclusion come into it. Psychiatrically oriented physicians are increasingly able to make positive diagnoses of anxiety problems.

SCOPE AND AIMS

The traditional tendency to approach psychiatry by limiting its benefits to the few extremely sick patients who have been called psychotic is unsound. This is no more workable than was the comparable tendency to limit consideration of tuberculosis to the far advanced condition of the "consumptive." What is required now is a health approach that embodies concern for the health of the personality, interpersonal relationships, and social adjustment as much as for the healthy functioning of the organs and tissues. By such an approach, patients would be examined to see if they are well rather than sick. By recognizing and dealing promptly with a wide variety of personal difficulties, the ultimate development of severer troubles would be prevented.

When dealt with in some ways, a disturbed person can be a very disturbing person. General hospitals tend to assume that any psychiatric service includes noise, risk of physical violence, and extremes of irrational behavior; it is possible to set up conditions and to approach patients in such a way that all these things happen. It is also possible, through a nonfearful, understandingly human approach to patients by all the staff and through the actual physical surroundings, to calm the excitement. Under such conditions there is seldom noise, and overt aggression is rare; the behavior of patients is usually that of insecure people trying to find reassurance.

The clue to development of an effective psychiatric service is primarily in personal attitudes to patients not only on the psychiatric service but throughout the hospital. A coldly impersonal, managed, routine set-up in which the patient must take his place in a veritable hospital production line will have quite a different effect from one that begins with the sick patient and sets up procedures with consideration for the person and his feelings as well as for the technical procedures that may be indicated for diagnosis and treatment.

The aim of a psychiatric service should be to work as openly and freely as possible. If illness takes away a person's capacity to act freely with self-direction, the treatment program should be calculated to restore this capacity. The traditional concept of confinement and locked doors works in the opposite direction; it makes it appear that the physician, rather than the illness, is taking away the patient's freedom. This is like blaming the physician, rather than the illness, when cardiac decompensation prevents a patient from climbing stairs. A combination of good psychiatry and good architecture can produce a service in which patients are so handled that occasion for restraint or confinement is very infrequent. The greater part of psychiatry can and preferably should be carried on in open ward situations. Any use of force, coercion, or confinement should be considered an acknowledgment of therapeutic defeat because of inability to win the free cooperation of the patient.

ARCHITECTURAL DESIGN

The design of hospitals should be functional; changes in treatment require changes in structural arrangements. When surgical patients were kept in bed for one and a half to two weeks after surgery, the bed was the treatment area. With present day ambulatory treatment, patients are frequently out of bed the day after surgery; this requires activity space on surgical wards that was not called for in the past. On psychiatric services in most instances, the time during which the patient is in bed is the least active treatment time. Provisions for sleeping and eating are no more than a background for treatment possibilities. In some hospitals (notably in Montreal), the patients come to the hospital in the morning, take part in the day program, and go home in the evening. Any psychiatric service requires patient activity space and treatment space. Patient activity areas include day rooms, a place for active participation in music, occupational therapy, and recreation, and the opportunity to care for others as a form of altruistic self-expression. Primarily, treatment areas should provide comfortable, acoustically treated interview offices that are not too large and that assure privacy and freedom from interruption. Group meeting rooms may also be used for staff conferences and group therapy. Most psychiatric services lack such facilities. If suitably designed and located, these facilities can serve outpatient as well as inpatient purposes.

ASPECTS OF FUNCTION

Psychiatric service in a general hospital has four aspects of function. First is the structure of the psychiatric ward or service itself. The design should be functional and should provide maximum freedom and a relaxing atmosphere that bespeaks the attitude of the staff and hospital to the patient. It should have facilities for caring for the occasional noisy patient in a soundproof room. Emphasis should be positive and aimed toward attractiveness and relaxing effect rather than negative and concerned chiefly with precaution against destruction and escape. There should be some provision for relative grouping of patients and provision for quiet pursuits, such as reading, and for louder group enterprises. Activities that are creative, such as playing the piano, singing, and painting, should be given preference over passive ones, such as listening to the radio or watching television; while the latter have their place, they should not crowd out the former.

Provision should be made for caring for children, preferably on a small unit primarily designed for them. Maximum self-help by patients should be encouraged; cafeteria meals are preferable to passive food service to patients. Access to the outdoors is desirable. It is questionable whether patients should wear hospital clothing during the daytime. It is doubtful whether segregation of the sexes is necessary. Michael Reese Hospital in Chicago has a new Institute for Psychiatric and Psychosomatic Research in which men and women share day rooms and mingle, even on the ward for disturbed patients. Each room has its own toilet. For disturbed patients each toilet is kept locked but is opened for the patient by the attendant on request. There is considerable social composure and quieting when the sexes are together, as compared with segregation, during the periods of social activity. This arrangement should not be difficult because of the desirability of single rooms in primary construction.

There has probably been a false economy in constructing dormitory facilities; now that many more patients care for themselves in the hospital, the disadvantages of the dormitory are more apparent than ever. Patients like and need privacy. All sorts of interpersonal complications are avoided if each patient has a room of his own. For psychiatric purposes, particularly, a predominance of single units is highly desirable. If patients stay longer, there is need for a small number of two bed units. Probably after the two bed unit, the next most desirable is a five bed unit. This gives some companionship and the beginning of group formation, yet does not provide the risk of leaving one patient out as can happen if three or four persons share accommodations. For any hospital purposes, sleeping units for more than five persons appear highly undesirable.

The second aspect of psychiatric function in the general hospital is provision of liaison service covering principally psychosomatic disturbances. Sometimes the psychological effect of treating such patients on a general medical ward (where of necessity there may be considerable preoccupation with tests, procedures, and medications) can be unsatisfactory. A service that is primarily designed for emphasis on the patient as a person and that considers organic procedures as necessary but unaccented parts of the total investigation may have better therapeutic results. Some interesting psychosomatic correlates emerge, and general practitioners and specialists in other fields find common interests with phychiatrists who are working on the more personal aspects of patients' problems. Rooms suitable for staff conferences and for group therapy have been found increasingly useful in the treatment of pyschosomatic problems.

The third aspect of psychiatric function in the general hospital grows as the service becomes established; it is consultation. The accuracy of diagnosis and effectiveness of treatment mount as personal factors become known and controlled. When physicians with different backgrounds and viewpoints get together, they combine their data and points of view to the advantage not only of patients but of each other. When this happens, the dichotomy that has isolated psychiatrists from their medical colleagues, to the disadvantage of both, rapidly disappears. This consultation service begins to define personal problems and to provide direct and positive treatment approaches. It saves unnecessary reiteration or detail in diagnostic studies when a physician intensifies his search for a patient's illness where it does not exist. It reduces the incidence of mistaken surgery. It wins cooperation with and acceptance of necessary medical and surgical procedures when patients are ignorant, apprehensive, or uncooperative. It helps nurses and other personnel understand patients as people, and, thus, it brings better understanding to the handling of sick, discouraged, and apprehensive patients.

The fourth aspect of psychiatric function is outpatient service. As this is developed, frequently in the interview offices provided for inpatient use, the period of necessary inpatient care is decreased, and, thus, the expense of treatment is reduced. Very logically, the development of social service extends from medical social work to coordination with community services and to assistance to therapeutic programs carried on in the outpatient department. The scope and organization of the outpatient department varies considerably in relation to the population and social nature of the area in which the hospital is located.

Special consideration should be given to the place of neurology. In smaller hospitals, this is probably best managed on the general medical wards. If a hospital is large enough to have a neurological grouping of patients, it is often advantageous to have the service linked with the psychiatry service, but it appears inadvisable to have neurological and psychiatric patients on the same ward. Except in hospitals having highly specialized services, psychiatrists are often the physicians with the most neurological background, and they must always be prepared to detect and deal with organic lesions in the patients under their care. Their association with physical and occupational therapy and their ability to handle reactions to handicaps also make the link of psychiatry with neurology desirable.

PSYCHIATRY AND PEDIATRICS

Development of a psychiatric service in a general hospital is especially beneficial in the field of pediatrics. Children must always be considered in their usual environment, particularly when temporarily removed from it by illness. They react so intensely to interpersonal difficulties at home that their emotional reactions must always be evaluated when their total health picture is being considered. They relate to each other so actively when grouped together that there is always need for understanding and skill in human relationships. As their emotional symptoms are often indications of difficulty in the lives of their parents, there is need for effective work in the homes by physicians, nurses, and social workers. Play therapy rooms are important adjuncts to both pediatric and child guidance services.

PERSONNEL AND PROGRAM

The staffing of psychiatric services is extremely difficult at the present time. There is an over-all shortage of physicians, and a much more intense shortage of those specially qualified in the field. The older men have little organized opportunity to learn psychiatry at the community level, and those whose experience has been relatively limited to the care of adults and the mentally ill often have limited background in pediatrics. Present day training programs call for diversity of experience and work with children, so that the younger men are being better prepared for this type of work. There still is, however, a great scarcity, and there is the risk that, although a well-appointed service can be set up, there is no one to run it. There is a certain law of supply and demand operative in medicine. The demand for this type of service is increasing so rapidly that the supply is bound to increase. The educational opportunities for those wishing to go into this field are vastly superior to those available 10 or 15 years ago.

In addition to the psychiatrist, nuclear personnel are the clinical psychologist, psychiatric social worker, occupational therapist, and nurse. These persons should be selected with a view to their warmth of interest in people and personal problems and to their own stability as well as their capacity to team up with others and their experience in community work.

The problem of nursing is one that requires both study and foresight. There have not been many psychiatric sequences available for general duty nurses. Many of them, particularly in recent years, have had three months' training in a state hospital while students. Graduate experience is desirable for this type of work, and nurses who have had it are not plentiful. Any hospital that plans to develop such a service would be wise to select a nurse with suitable attributes of personality, leadership, and interest in this field and to give her opportunity to prepare for this type of work. Such a nurse will be better able to take charge of this program than one who has had only experience in general duty.

There should be considerable flexibility and local variation in the development of psychiatric services. Principles can be stated, but the development should be appropriate to the hospital as it exists and functions and to the nature of the hospital's relationship and responsibilities to the community. Because there is a certain element of pioneering involved, those working in the hospital may desire to discuss their work with and be advised by consultants from various professions concerned. They should also make visits to other services of this type to gather ideas. It is particularly important in the architectural planning that the program be determined in advance and discussed carefully with professional personnel who have worked in such programs. The plan should also be reviewed with architects. Care should be taken to work from the functional needs of the program rather than from the existing design of the hospital or the traditional concepts of hospital construction, which were developed in an era when this phase of medical work was given scant consideration. The trend toward provision of psychiatric facilities in conjunction with other medical services is so strong that any hospital big enough to be subdivided into services or departments should seriously consider providing a psychiatric service, for, no matter what the detail of treatment, every aspect of medical practice fundamentally comes back to the personal level: the treatment of people by people.

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USE OF ANTIBIOTICS IN NONBACTERIAL RESPIRATORY INFECTIONS

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and
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The discovery of the sulfonamides and antibiotics is one of the most brilliant pages in the history of medicine. Many bacterial and rickettsial diseases that formerly were fatal are now treated successfully with antibiotics in a relatively short time. The outstanding success with bacterial and rickettsial infections has not been paralleled in the antibiotic treatment of viral diseases. Antibiotics are effective against the viruses that cause psittacosis, lymphogranuloma venereum, and trachoma and appear to be of value in the treatment of viral pneumonias.[1] It is generally conceded, however, that the use of antibiotics in acute nonbacterial respiratory infections and influenza is of no benefit in the treatment of the primary disease.[2]

The most important viral-like conditions with regard to incidence and economic importance are moderately severe, acute illnesses that are loosely grouped with certain bacterial conditions as acute respiratory infections. During outbreaks of so-called acute respiratory infection simultaneous increase in both the bacterial-like and viral-like syndromes is commonly observed. It is also common to encounter the use of antibiotics in almost all patients despite the absence of any proof of specific value of these agents in the nonbacterial syndromes. Antibiotics are given with the hope of preventing secondary bacterial infection in those patients who do not have bacterial infection when first seen. Since little or no specific therapy is available for the common viral-like respiratory syndromes, any measure that will limit or minimize the duration of the illness is important.

During the early months of 1952, two of us (R. S. B. and P. N. J.) observed an outbreak of respiratory disease in which there were a number of cases that later proved to be type B influenza. Secondary bacterial invasion was not considered in study of these cases, but analysis of the group, which included known influenza, the common cold, tonsillitis, pharyngitis, bronchitis, and bacterial and viral pneumonias, suggested that antibiotic therapy had no effect in the influenza-like cases.[3]

During an epidemic of type A' influenza in the early months of 1953, we had the opportunity to observe a second outbreak under conditions comparable to those that existed the previous year. Again, a large number of cases of respiratory disease developed over a short period of time, with both viral-like and bacterial-like syndromes. Several hundred of the patients admitted to the hospital presented an influenza-like clinical picture

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Dr. Jones has been discharged from military service since this paper was submitted, and his present address is St. Luke's Hospital, Chicago 5.

[1] Eaton, M. D.: Chemotherapy of Virus and Rickettsial Infections, Ann. Rev. Microbiol. **4**: 223-246, 1950. Smadel, J. E.: Present Status of Antibiotic Therapy in Viral and Rickettsial Disease, Bull. New York Acad. Med. **27**: 221-231 (April) 1951. Finland, M.: Antimicrobial Treatment for Viral and Related Infections: Antibiotic Treatment of Primary Atypical Pneumonia, New England J. Med. **247**: 317-325 (Aug. 28) 1952.

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[3] Bigham, R. S., Jr., and Jones, P. N.: Unpublished data.

on admission. Since these patients had been in close contact under normal living and working conditions with those presenting the bacterial-like conditions and since all were admitted to respiratory wards, it seemed likely that so-called secondary bacterial invasion might occur. This report concerns our investigation of the value of antibiotics as prophylaxis against complications in the nonbacterial influenza-like syndrome. We also studied the efficacy of antibiotics as primary therapy in patients with this syndrome.

CLINICAL PROCEDURE

All patients with respiratory disease were admitted from the dispensary to open respiratory wards after a white blood cell count and a throat culture were taken. All were given a uniform schedule of saline gargles, phenylephrine hydrochloride nose drops, and forced fluids. In strict order of admission to the ward and prior to examination by the physician, each patient was immediately placed on one of three treatment schedules by the ward nurse. These schedules consisted of the administration of capsules identified as 1, 2, or 3, to be given every six hours. They contained acetylsalicylic acid (aspirin), 600 mg., oxytetracycline (Terramycin), 500 mg., and erythromycin, 200 mg., respectively. The supply of erythromycin was used up in the study, and in the later phases new admissions were alternated between schedule 1 (acetylsalicylic acid) and schedule 2 (oxytetracycline). The ward nurse and patients were not aware of the contents of the capsules, but the physician always knew which drug was being given to each patient. The ward physician was authorized to remove a patient from the series if there were clinical signs of bacterial infection on initial examination. Bacterial infections consisted almost entirely of exudative tonsillitis or pharyngitis that later proved to be due to beta hemolytic streptococci. Some bacterial pneumonias were also observed. In a few cases changes in therapy were dictated by bacteriological or radiological studies, which were taken on admission but were not interpreted until the second or third day of hospitalization. These patients were also excluded from the series. Patients were not excluded from the series on either physical findings or laboratory findings subsequent to those on admission.

Patients selected for this study had some or all of the following complaints on admission: headache, lumbar backache, general muscular aches, fever, nonproductive cough, and mild sore throat. Some also complained of nasal congestion. All were admitted within 12 to 18 hours after onset of symptoms. The physical findings were limited to a mildly swollen pharynx and a fever ranging from 99.4 to 105 F. All patients with exudative pharyngitis or tonsillitis on admission were excluded as were those whose initial throat culture was abnormal. Normal throat flora was considered in this group to include diphtheria cocci, Neisseria catarrhalis, and Staphylococcus aureus. Thirteen patients showing nonhemolytic streptococci were included because of low leukocyte counts and a viral-like clinical history. Patients whose throat cultures showed hemolytic streptococci were excluded. An arbitrary maximum initial leukocyte count of 8,500 per cubic millimeter was established for inclusion in the group. Only two patients with higher counts (10,050 and 11,500) were accepted; these patients had type A′ influenza shown serologically. The leukocyte counts ranged from 3,800 to 8,500 per cubic millimeter and averaged 6,355 per cubic millimeter.

Sixteen of the patients in this series were selected at random for serologic studies for influenza. With the use of paired serums of acute and convalescent infections, a fourfold to twelvefold rise in titers for type A′ influenza was found in 11 of the 16 cases. The leukocyte counts in these 11 cases ranged between 4,900 and 11,500 per cubic millimeter and averaged 7,095. While it was not feasible to do serologic studies on more than a small percentage of the patients admitted, the clinical pattern in all of the cases was similar, and we suspect that a majority of the patients in the study had type A′ influenza. For the sake of accuracy, however, the condition is referred to as a nonbacterial influenza-like syndrome.

After all patients were eliminated who failed to meet the arbitrary criteria as established for this influenza-like syndrome the records of 150 patients were left for examination. Of these, 76 received oxytetracycline, 54 received acetylsalicylic acid, and 20 received erythromycin.

As the findings of physical examination and laboratory studies were normal except for a slight pharyngeal congestion, a patient's statement of his symptoms and the temperature response were the only criteria available for evaluation. Subjective symptoms and fever were closely associated in that all of the patients felt entirely well when their temperature returned to normal, except that some had a residual tiredness and a persistent dry cough. Length of hospitalization could not be utilized as a criterion since the minimum hospitalization necessary had been set at five days. Accordingly, the most objective and accurate measurement of response was judged to be the course of the fever. Temperatures were taken at intervals of 6 hours, but we adopted 12 hour periods for purposes of determining the response. Temperature was considered normal when it fell to or below 98.8 F.

TABLE 1.—*Average Response to Therapy of 150 Patients with Nonbacterial Respiratory Infections*

Drug	Total No.	Patients, %	Average No. Hours to Become Afebrile
Oxytetracycline (500 mg. every 6 hours).....	76	50.7	41
Erythromycin (200 mg. every 6 hours).......	20	13.3	42
Acetylsalicylic acid (600 mg. every 6 hours)..	54	36.0	30
Total....................................	150	100.0	37

RESULTS

Among the 150 patients the elapsed time between admission and return of oral temperature to 98.8 F or below ranged from 12 to 120 hours, with an average of 37 hours. In the group treated with acetylsalicylic acid the return to normal temperature averaged 30 hours. The group receiving oxytetracycline averaged 41 hours, and the erythromycin treated group averaged 42 hours between admission and return of the temperature to normal (table 1). Disappearance of subjective symptoms corresponded closely to return of the temperature to normal with the exception of persistent cough. There was no indication that cough was less severe or prolonged in any therapy group. In the 11 cases of proved type A′ influenza the average time between admission and return of oral temperature to normal was 51 hours. The average was 54 hours in the six patients who received acetylsalicylic acid and 48 hours in the five patients who were given oxytetracycline. Differences in time of response were not significant (table 2).

After the temperature returned to normal no patient had a recurrence of symptoms or any sign of bacterial infection before discharge from the hospital, and no pathogenic organisms were found in throat cultures taken at the time of discharge. In five patients (four in the oxytetracycline therapy group and one in the acetylsalicylic acid therapy group) single isolated asymptomatic elevations of temperature to 100 F occurred 24 hours after the temperature had returned to normal.

TABLE 2.—*Average Response to Therapy of Patients with Serologically Proved Type A′ Influenza*

Drug	No. of Patients	Average No. Hours to Become Afebrile
Oxytetracycline (500 mg. every 6 hours)....	5	48
Acetylsalicylic acid (600 mg. every 6 hours)	6	54
Total.......	11	51

COMMENT

It is evident from these observations that neither oxytetracycline nor erythromycin altered the course of the disease. Indeed, the patients who were given acetylsalicylic acid usually felt better sooner than those who were receiving either oxytetracycline or erythromycin. There was no recurrence of symptoms or evidence of secondary bacterial infection in any of the patients.

It might be argued that the use of the antibiotics is beneficial in prevention of bacterial infections that might complicate a nonbacterial infection. In our patients suffering from an influenza-like syndrome no secondary bacterial infection was recognized in either the group treated with acetylsalicylic acid or the groups treated with antibiotics. It is, of course, advisable to use an appropriate antibiotic whenever a secondary bacterial infection occurs, but statistically the routine use of antibiotics for the prevention of these secondary infections does not appear justified.

Many studies have shown that antibiotics can be harmful as well as beneficial.[4] Serious, even fatal, infections may occur with either fungi or nonsensitive bacteria that are ordinarily saprophytic until the normal bacterial flora is altered by an antibiotic. While it is true that this adverse response usually occurs only with prolonged use, the potential danger exists.

The cost of antibiotics as compared to that of acetylsalicylic acid should also be considered, both in military practice and in civilian practice. The average retail cost of a capsule of oxytetracycline is 35 cents; a tablet of erythromycin costs 32 cents; and an acetylsalicylic acid tablet costs approximately 1 cent. The overwhelming percentage of savings should be kept in mind in view of the extensive use of antibiotics for treatment of nonbacterial influenza-like syndromes. If there was any benefit to the patient, even though small, the expenditure of funds for antibiotics would be justified. As the patient derives no benefit and is even subjected to a slight risk of complications from such therapy, the routine use of these drugs in nonbacterial infections is not justified.

There is no doubt that the same symptoms seen in these patients with a nonbacterial influenza-like syndrome may frequently precede a bacterial infection. In most cases the initial physical examination and white blood cell count will clearly differentiate bacterial from nonbacterial infections. It is, of course, necessary for the attending physician to make certain that a disease truly responsive to specific antibiotic therapy is not present.

SUMMARY AND CONCLUSIONS

Treatment with acetylsalicylic acid (aspirin), oxytetracycline (Terramycin), or erythromycin was divided among 150 patients with a nonbacterial influenza-like syndrome. The dosage consisted of acetylsalicylic acid 600 mg., oxytetracycline 500 mg., or erythromycin 200 mg. every six hours.

Paired serum samples were drawn at random from 16 patients for serologic study. Eleven patients had type A′ influenza. Although serologic identification of the disease was not obtained in the entire group, the clinical picture and course was similar in all cases studied.

Of the 150 patients, 54 were treated with acetylsalicylic acid, 76 with oxytetracycline, and 20 with erythromycin. The interval from admission to return of the temperature to normal averaged 37 hours for the entire group. The time required for return of normal temperature in the group treated with acetylsalicylic acid averaged 30 hours, in the group treated with oxytetracycline 41 hours, and in the group treated with erythromycin 42 hours. It would appear from this data that the antibiotics oxytetracycline and erythromycin had no influence on the course of the disease.

Of the 11 patients who were proved serologically to be suffering from type A′ influenza, six were given acetylsalicylic acid and five were given oxytetracycline. In these patients the average interval from admission to return of the temperature to 98.8 F was 54 and 48 hours respectively.

No secondary bacterial infection was observed in this series, in either the group treated with antibiotics or the group treated with acetylsalicylic acid. Thus it appears that administration of antibiotics routinely to prevent such secondary bacterial involvement is not justified statistically. If a secondary infection develops the appropriate antibiotic should, of course, be employed.

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[4] Smith, D. T.: The Disturbance of the Normal Bacterial Ecology by the Administration of Antibiotics with the Development of New Clinical Syndromes, Ann. Int. Med. **37**: 1135-1143 (Dec.) 1952. McVay, L. V., Jr., and Sprunt, D. H.: A Study of Moniliasis in Aureomycin Therapy, Proc. Soc. Exper. Biol. & Med. **78**: 759-761 (Dec.) 1951. Woods, J. W.; Manning, I. H., Jr., and Patterson, C. N.: Monilial Infections Complicating the Therapeutic Use of Antibiotics, J. A. M. A. **145**: 207-211 (Jan. 27) 1951. Fungus Infections Complicating Antibiotic Therapy, Editorial, ibid. **149**: 762-763 (June 21) 1952. Keefer, C. S.: Alterations in Normal Bacterial Flora of Man and Secondary Infections During Antibiotic Therapy, Am. J. Med. **11**: 665-666 (Dec.) 1951. Sommer, L. S., and Favour, C. B.: Biologic Complications of Penicillin Therapy, ibid. **7**: 511-517 (Oct.) 1949. Finland, M., and Weinstein, L.: Complications Induced by Antimicrobiotic Agents, New England J. Med. **248**: 220-226 (Feb. 5) 1953. Dearing, W. H., and Heilman, F. R.: Micrococci (Staphylococcic) Enteritis as a Complication of Antibiotic Therapy: Its Response to Erythromycin, Proc. Staff Meet., Mayo Clin. **28**: 121-134 (March 11) 1953.

THE FAMILY PHYSICIAN AND THE PUBLIC HEALTH DEPARTMENT

CHAIRMAN'S ADDRESS

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With the rapid progress in medical and social sciences there have been concurrent changes both in the private practice of medicine and in public health practice. The family physician has the advantage of new drugs such as the antibiotics, cortisone, and isoniazid. Because of improvement in transportation, new diagnostic aids, improved laboratory procedures, and in some instances because of the changing pattern of medical practice, physicians can now see more patients a day. The work of the health department has been affected not only by these factors but also by the changing pattern of community life. The shifting of the population from rural to urban areas, the more recent trend of the decentralization of large metropolitan areas, and the development of large suburban communities have caused changes in the health department program.

The development of industry and shopping centers in suburban areas, the need for intensive specialization in complicated production methods, and the loss of production through absenteeism in industry have all made both management and labor more interested in the health of the worker. With the increasing interest of the public in health, development of community action through the formation of new voluntary organizations for various health purposes, and increasing governmental expenditure for health, it is time to evaluate the relationship of the family physician and the public health department.

HEALTH AN INDIVIDUAL RESPONSIBILITY

The individual will always be responsible for obtaining personal health services. There is general agreement that an educated person will do more for his health and the health of his family than can be done for them. In the past, measures for health maintenance demanded only limited individual responsibility. The development of pure water supplies, adequate sewage facilities, pasteurization of milk, and other sanitary programs were achieved through community action in which the individual may have participated as a citizen but was required to take no further initiative. In the future, however, there will be a need for greater individual responsibility in protecting one's health. Good health cannot be taken for granted, and the public is being rapidly educated to seek early medical care. It is the individual who must visit the physician for early care and who must avoid overweight, alcoholism, reckless driving, and home accidents. These things he must do for himself; they cannot be done for him. The individual, however, needs not only information but motivation; he must be convinced to seek what he knows is good for him and his family. Personal health services, therefore, are to a large extent determined by the individual's knowledge, by his attitude, and by the action he takes in obtaining necessary services.

The family physician is more than ever before in the front line of preventive medicine and health maintenance. He has an unusual opportunity to be of service to his patients and through them, to the community as a whole. The private practitioner has certain responsibilities to his patients. He must provide rapid diagnosis to determine the patient's need for preventive, therapeutic, and rehabilitative care. He is responsible for seeing that the patient receives the best care possible. The general practitioner should undertake no services for which his qualifications and facilities have not thoroughly prepared him. The patient must be considered not only as an individual but also as a member of a family and a community. The physician must understand the social and economic factors that contribute to his patient's health or illness. Continuity of care is important if the patient is to be afforded the best possible health. This includes not only treatment in time of sickness but health supervision in order to motivate people to seek this preventive care. Each physician must keep up-to-date in the newer developments in the medical sciences so as to afford his patient the best possible care.

PUBLIC HEALTH PROGRESS

Similar to the family physician for the patient, we have the family physician for the community, namely the health officer. The health department, comprised of public health physicians, public health nurses, sanitary engineers, and others, attempts to provide services to the community that cannot be provided by the family physician. States and localities have broadly defined public health as the protection and advancement of community health or, as defined by the Massachusetts law, "The Department (of Public Health) shall take cognizance of the interest of health and life among the citizens of the Commonwealth." [1] The provision of health services is not the perogative of the private practitioner or of the health department. It is everybody's business, and since there are certain essential and desirable services that people cannot provide for themselves or obtain from their physician, each state and territory and most localities have a health department. Over the past decade there has been a gradual coverage of the United States with local health departments, so that now approximately 75% of the population is covered by such service.[2]

Traditionally, health departments have sought to reduce or remove the major day-to-day threats to health. Originally charged with the responsibility for control of epidemics and sanitation, health departments have grad-

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Read before the joint meeting of the Section on Pediatrics, the Section on Physical Medicine and Rehabilitation and the Section on Preventive and Industrial Medicine and Public Health at the 102nd Annual Session of the American Medical Association, New Yark, June 4, 1953.

Dr. Getting was formerly Commissioner of the Massachusetts Department of Public Health and is now at the School of Public Health, University of Michigan.

[1] Section 5, Chapter 3, of the General Laws, Commonwealth of Massachusetts.

[2] Emerson, H.: Public Health and Medical Care for the Community and the Individual, J. A. M. A. 148:41-44 (Jan. 5) 1952.

ually enlarged the scope of their activities as community problems have developed. As infectious diseases such as tuberculosis, syphilis, typhoid, and diphtheria became less prevalent owing to the joint endeavor of medical and public health professions, health departments became concerned with the improvement of maternal and child health and the special problems of the newborn. Now with the lengthening life span of the population, health departments are becoming more concerned with the health of the adult population and with chronic diseases. These are heart disease, cancer, diabetes, and others, diseases that today are the major causes of death in the U. S.[3] Prevention of home accidents and promotion of health through community education are more recent programs of health departments.

Public health programs, like the private practice of medicine, have been modified with the changing needs of the people and with new developments. New problems and techniques require new methods of organization. The distribution of gamma globulin for the prevention or modification of poliomyelitis is an excellent example of how the public health department, voluntary health organizations, and private practitioners of medicine can cooperate to bring benefits to the people. It is as unrealistic to attempt to solve today's health problems by the methods developed 50 years ago as it is for the physician to attempt to practice modern medicine without the use of antiseptics, modern anesthetics, sulphonamides, antibiotics, cortisone, or antihistamines. Constant changes are necessary to adapt public health programs to changing conditions.

Unfortunately, in some areas of the country private practitioners regard with suspicion any new developments in public health programs. As hearty individualists, physicians are naturally reluctant to change their mode of practice or living and to depart from previously well-worn routines; and yet most changes are just as new and disturbing to health department personnel as they are to the private practitioner. But, with the demands of the public for improved services, both the private physician and the health officer must adapt themselves to changes as quickly as possible, with the knowledge that they are thus able to give better service.

REFERRALS FROM HEALTH DEPARTMENT

Health departments have traditionally worked with the full cooperation of the medical profession. The family physician is the front line of any public health endeavor. In order for a community health program to succeed the practitioner must give full cooperation and active rather than passive support. Experience has shown that the more extensive the public health program a community enjoys, the greater the demand made by the public on services not only for the treatment of illness but also for health supervision and for preventive services.

Health departments often refer patients to the private physician. As far back as 1933, Anderson and Bigelow[4] in a study of diphtheria immunization in Massachusetts found that such a program created an unusual demand for private service from the family physician, even though free service was available in public clinics. This experience can be cited repeatedly. Over 11 years ago, while Commissioner of Public Health for the city of Worcester, Mass., I was responsible for writing and delivering a weekly radio broadcast on health. One of the objectives was the promotion of whooping cough immunization. As yet pertussis vaccine was not distributed by the health department nor was it given in the clinics. This promotional program was, therefore, designed with only one objective, namely, the referral of all children under 2 years old to their family physician for such treatment. The success of the immunization program by the private practitioner was measured by a rapid increase in the sale of pertussis vaccine. The immunization program of many cities and states illustrates this same experience today. While health departments promote immunization of children with the triple antigen, and while many children may be immunized in public clinics, it has been found that more and more parents take their children to the family physician for this service. This is invariably encouraged by the health department.

Another public health activity that refers many patients to the family physician is the school health program. In Massachusetts, New York, Illinois, and many other states, school children are required to be examined by a physician at periodic intervals. These examinations may be carried out by the school physician at the request of the parents whenever they do not obtain such services from their own physician. Children who need medical attention are referred to the family physician for diagnosis and care. The number of children given this required physical examination by a family physician has continually increased. Many schools have a special form that children are given to take to their parents urging the latter to seek the services of the family physician. The American Academy of Pediatrics has found that only 3% of the total volume of medical care to children is furnished in public clinics; thus 97% of such care must be given by the private practitioners of medicine.[5]

The development of screening programs designed to detect early cases of tuberculosis, diabetes, syphilis, cancer, heart diseases, and other physical defects has been an outgrowth of the simple x-ray screening programs for detection of tuberculosis. These programs are designed to detect in apparently well persons conditions that require the attention of the physician for diagnosis and treatment. The American Medical Association in the past has promoted a program for the annual physical examination of all adults. The impracticability of such a program must be apparent to all, since there are not enough physicians to make all the necessary examinations. The health department through the screening program, therefore, attempts to bring to the family physician's office persons with conditions requiring attention. Screening programs have been developed in many areas of the country, and the number of persons referred to private practitioners can be measured in the hundreds of thousands. Most of these have been for suspected tuberculosis. More recently, the multiple screening program of Richmond, Va., referred 12,000 patients to their physicians for examination and treatment. In Atlanta, Ga., 236,000 and in Alabama 356,000 persons were tested for tuberculosis, syphilis, and anemia.[6] In Massachusetts over 10,000 were screened for tuberculosis, syphilis, diabetes, anemia, vision and hearing defects, heart disease, and other conditions. Approximately 60% of these were referred to their physicians for diagnosis and treatment.[7] Similar multiple screening programs have been carried on in Indiana and in San Jose and San Francisco, Calif., and all have been for the purpose of referring persons with physical defects to their family physicians. A screening program is of no value unless the follow-up is made by the family physician or by a public clinic. Practically all, or over 97%, of the persons referred for follow-up in Massachusetts went to their own physicians for diagnosis and treatment. Thus these referrals by multiple screening programs foster patient-physician relationships.[8]

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[3] Getting, V. A.: Chronic Disease and the Aging Process, Am. J. Pub. Health 43: 4-8 (Jan.) 1953.

[4] Anderson, G. W., and Bigelow, G. H.: Diphtheria Immunization in Private Practice, Am. J. Pub. Health. 23: 655-662 (July) 1933.

[5] American Academy of Pediatrics: Child Health Services and Pediatric Education, New York, The Commonwealth Fund, 1949.

INCREASED PRACTICE

Many other programs have been administered by health agencies for the purpose of detecting early illness. Teachers and other school employees are given physical examinations and chest roentgenograms. Many of these examinations are carried out by private practitioners. Premarital blood testing is required by all the states except nine (Maryland, South Carolina, Mississippi, Arkansas, Minnesota, New Mexico, Arizona, Nevada, and Washington). Louisiana only requires the man to be examined. A prenatal blood test is required in all states except six (Tennessee, Alabama, Mississippi, Minnesota, Wisconsin, and Maryland). Many states require that each hospital inpatient and certain licensees, such as barbers and hairdressers, have a serologic test. The well child conference is designed to service persons who cannot obtain health supervision from the family physician; however, all infants requiring medical care are referred to a private physician. The establishment of well child conferences in a community often stimulates parents to seek similar health supervision from either a pediatrician or the family physician.

Many services are offered by health departments to assist physicians in the care of their patients: the provision of diagnostic laboratory aids; the free distribution of biologics for diagnosis, prevention, and treatment of communicable diseases; the availability of consultants and consultation clinics; and the provision of tumor diagnostic services. The health department thus assists the physician in providing high quality medical care without interfering in any way with the patient-physician relationship.[9]

Perhaps the most important health department program that brings patients into the physician's office is health education. This program has been greatly enlarged by participation of not only the medical profession through its national, state, and local medical societies and its specialty groups but also the voluntary health associations and the public press as well. Unfortunately, popular periodicals are sometimes guilty of presenting the melodramatic and the unusual, thereby giving the public information that is either misleading or incorrect. Because of daily exposure to health education, the American public is more health conscious and is demanding and expending more for health than ever in the history of the country.

Over the past two decades approximately 4.3% of the total consumer expenditure has been for medical care. In 1951 over 13.5 billion dollars was spent for medical care, including the services of physicians, dentists, nurses, and other practitioners, as well as hospital care, drugs, and appliances. Nearly two-thirds of these expenditures were paid directly by the consumer, about one-fourth by governmental agencies, and the remainder by philanthropy and industry.[10] The American public wants good health and is willing to pay for it.

SUMMARY AND CONCLUSIONS

Health is everybody's business. Optimal health is not an inalienable right and privilige of the individual that comes automatically. The health of the individual must be actively worked for, and the health of the community must be carefully planned, developed, and nurtured. The health program must consider the entire community. The keystone of every public health endeavor must always be the private practitioner of medicine, who must rely on the local health department for assistance. If the health department is properly organized and carries out the objective for which it was designed, it will support and improve the private practice of medicine. If the local health department is poorly organized, the health officer is poorly trained or engaged on only a part-time basis, or if the health department is inadequately financed and staffed, then the community health program will suffer, and the people will not demand medical care of high quality. As a result of this lack of motivation of the public to seek medical care the private practitioner is often denied the privilege of providing preventive measures, periodic health appraisals, and early care. The private practitioner of medicine gains the greatest satisfaction from his work when he can detect early such diseases as diabetes or cancer, institute the necessary diagnostic measures to arrive at a definite diagnosis, and see that his patient receives the necessary care, including rehabilitation.

In this presentation I have attempted to illustrate how the health department can assist the private practitioner and how an active health department can bring about a greater demand on the part of the public for many services from the physician. The development of health programs should, therefore, not be looked upon with suspicion by the private practitioner. The physician should be included in the development of all programs, and the medical society should be fully informed of the purposes and objectives of any particular program. In this way the physician has an opportunity to participate in the formation of new public health programs, which he should then accept cheerfully. Such programs send him patients who require attention and patients in the early stages of disease to whom he can be of greater service. Unfortunately, many physicians do not attend medical society meetings, nor do they read, with any great regularity, information sent to them by the health department or appearing in various publications. Thus, often physicians may not be aware of the true purposes and objectives of new public health programs, and, since they lack knowledge, they oppose instinctively.

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[6] Scheele, L. A.: Current Experience in Multiphasic Health Examinations, Am. J. Pub. Health **41**: 635-639 (June) 1951.

[7] Getting, V. A., and Lombard, H. L.: The Evaluation of Pilot Clinics, New England J. Med. **247**: 460-465 (Sept. 25) 1952. Getting, V. A., and Lombard, H. L.: The Cost and Evaluation of Multiple Screening Procedures, New York J. Med. **52**: 2605-2609 (Nov. 1) 1952.

[8] A. M. A. Compilation of Statistics on Multiple Screening Programs: Unpublished data.

[9] Getting, V. A.: Services Offered to the Physician by the Massachusetts Department of Public Health, New England J. Med. **237**: 693-698 (Nov. 6) 1947.

[10] Building America's Health, Report of the President's Commission on the Health Needs of the Nation, Vol. 4, Financing a Health Program for America, 1953.

Physicians have an obligation not only to their own patients but to the community as a whole. The practice of medicine includes not only the physician's responsibility to his patient and the patient's family but also his responsibility in the planning, development, and enactment of public health programs. A family physician who ignores or who, because of lack of information, passively resists public health measures is being of disservice to his own patients, to himself, and to his profession.

The future of American medicine will depend more and more on individual action of the people. Many physicians are first learning of new scientific developments not in medical journals but from patients who have learned of these developments from television, radio, or the press. Working together, the medical profession and the health department can assure the private practitioner a position in which he can offer his patients the best medical care available. His rewards for such community participation are increased professional satisfaction and increased motivation of the public to seek adequate medical care.

NEW CHOLINERGIC DRUGS FOR POSTOPERATIVE URINARY RETENTION

Mandel Weinstein, M.D.,
and
Morton Roberts, M.D., Jackson Heights, N. Y.

Postoperative urinary retention, in the absence of primary organic disturbances in the urinary bladder, may ensue as a sequel to surgical operations notwithstanding a full bladder, normal kidney function, and the desire to void. To counteract this condition, new cholinergic drugs have been developed that increase the vesical activity and mimic the effects of parasympathetic stimulation.[1] Clinically, they have been shown to produce increased bladder activity and thus aid in the promotion of normal urinary function.[2]

In the following report the effectiveness of two new members of this cholinergic group, benzpyrinium (Stigmonene) bromide [1-benzyl-3-(dimethylcarbamyloxy) pyridinium bromide] and 1,2-xylylene-bis[1-(3-dimethylcarbamyloxy)-pyridinium bromide], a related experimental cholinergic compound coded W341, are compared and their efficacy evaluated in the treatment of established postoperative urinary retention. The chemical configuration of the two cholinergic compounds are given in figure 1.

That benzpyrinium bromide acts as an inhibitor of cholinesterase,[3] is less toxic than physostigmine or its derivatives, and is clinically devoid of side-effects in therapeutic doses, are facts that have been demonstrated by many clinical investigators.[4] Comparative pharmacological studies established that compound W341 is, in all particulars, a more active cholinergic than benzpyrinium bromide.

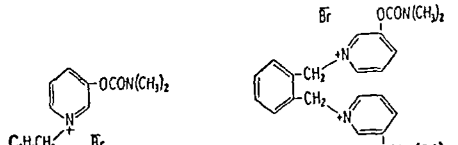

Fig. 1.—Chemical configurations of benzpyrinium bromide (on the left) and compound W341 (on the right).

CLINICAL MATERIAL AND PROCEDURE

Of 1,948 surgical procedures, urinary retention developed in a total of 160 patients. Our study is based on observations made on this group. History and physical examination precluded patients who had urinary disease. The operative procedures were laparotomies of major character in almost all instances. The type of anesthesia and preoperative and postoperative medication were evaluated as to the part each may have contributed to the vesical atonia. Eighty-six of the patients were males. The ages ranged from 12 to 77 years. Postoperative urinary retention was deemed to be established if a patient could not empty the bladder voluntarily within about 11 to 12 hours after the surgical procedure. This impression was confirmed by palpation, percussion, and the clinical picture at that particular moment. To stimulate voiding he was helped not only by sympathetic and persistent nursing care but also by early ambulation,

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From the Surgical Service, Boulevard Hospital, Long Island City.

Benzpyrinium (Stigmonene) bromide and 1,2-xylylene-bis [1-(3-dimethylcarbamyloxy)-pyridinium bromide] (Cholinergic Compound W341) used in this study were supplied by Warner-Chilcott Laboratories Div., New York 11.

[1] Winter, I. C.: The Pharmacology of Micturition: The Effect of Drugs on the Bladder and Urethra with Autonomic Supply Intact, J. Urol. **46**: 952, 1941.

[2] Gordon, E. J.: Urinary Bladder Atony Complicating Postoperative Course of Surgical Patients: Management with Prostigmin, Urol. & Cutan. Rev. **44**: 115, 1940.

[3] Sakal, E. H.: The Search for Therapeutically Useful Parasympathomimetic Compounds, Journal-Lancet **70**: 474, 1950.

[4] Bookrajian, E. B., and Truter, W.: Stigmonene Bromide in the Diagnosis of Early Pregnancy and the Treatment of Simple Delayed Menstruation, Am. J. M. Sc. **224**: 386, 1952. Cohen, A., and Goldman, J.: The Use of Cholinergic Drugs in the Treatment of Muscle Spasm in Rheumatoid Arthritis: With Special Reference to Stigmonene Bromide, J. Philadelphia Gen. Hosp. **2**: 46, 1951. Decker, A.: The Effect of Stigminene Bromide in Delayed Menstruation: A Clinical Study, Am. J. Obst. & Gynec. **64**: 1137, 1952. Donehue, F. M.: Stigmonene Bromide in the Management of Postoperative Distention, Postgrad. Med. **10**: 341, 1951. Judy, K.: Surgical Evaluation of a New Cholinergic Drug—Stigmonene Bromide, Bull. Jersey City Med. Center **3**: 17, 1951. Mulholland, H. F., and O'Connell, J. H.: Stigmonene Bromide in the Treatment of Muscular Spasm, to be published. Whitaker, J. C., and Wright, L. T.: Abdominal Distention: Treatment with Stigminene Bromide, a New Cholinergic Drug, New York J. Med. **50**: 437, 1950.

which makes it possible for the patient to assume the most natural posture conducive to voiding. At this point, an intramuscular injection of the drug or placebo was administered and repeated every two hours until satisfactory micturition occurred or catheterization became necessary. In the latter instance therapy was continued until the patient voided spontaneously.

A preliminary appraisal of benzpyrinium bromide in the treatment of established urinary retention resulting from atony of the bladder disclosed, however, that the recommended dosage of 1 cc. of a 1:2,000 solution (0.5 mg.) every three hours to a total of five doses was not productive of the desired effect. Since Cohen and coworkers demonstrated clinically the wide therapeutic dosage range of benzpyrinium bromide, it was felt, firstly, that a higher dosage could be employed without ill-effects and, secondly, in so doing the optimal dosage could be established. Furthermore, it was believed that if there was an appreciable difference in the results obtained employing two different doses of the same drug under identical conditions, the use of a true placebo for control purposes would not be essential to the evaluation.

Accordingly, then, in this investigation 40 of the 160 patients received intramuscular injections of a 1:1,000 solution (1 mg.) of benzpyrinium bromide every two hours until the bladder was satisfactorily emptied or catheterization became necessary. A second group of 40 patients received intramuscular injections of 1 cc. of a 1:500 solution (2 mg.) of benzpyrinium bromide at two hour intervals.

Of the remaining 80 patients, 40 received intramuscular injections of a placebo for control purposes and 40 intramuscular injections of 1 cc. of a 1:1,000 (1 mg.) solution of compound W341. The conditions under which compound W341 and the placebo were administered were as identical as possible with those of the two groups that received benzpyrinium bromide.

RESULTS

Series 1.—The results obtained in the series of 80 patients who were treated with intramuscularly administered benzpyrinium bromide, 1 mg. and 2 mg., respectively, are summarized in table 1. Of 40 postoperative patients with established urinary retention, 24, or 60%, were able to empty their bladders satisfactorily when 1 mg. of benzpyrinium bromide was given every two hours. In the remaining 16 patients, who had to be catheterized, the catheter was used 21 times. Voiding without difficulty was effected on an average of 7½ hours after initiation of the drug therapy. The average number of injections was 4.2. In the group of 40 patients in similar circumstances who received 2 mg. of benzpyrinium bromide intramuscularly, 37, or 92.5%, voided with good emptying of the bladder. It was necessary to catheterize three patients only once in each instance. Normal bladder function was reestablished on an average of 4¼ hours after the first dose of benzpyrinium bromide was given. The average number of injections administered was 2.8.

When the results were compared in these two groups of 40 patients each, it was found that when the 2 mg. dose of benzpyrinium bromide had been administered intramuscularly every two hours, the incidence of necessary catheterization was reduced 32.5%. In addition, it should be noted here that the catheter had to be used only three times in the group receiving the 2 mg. dose, while those on the 1 mg. dose required the catheter on 21 occasions. Moreover, on the average, satisfactory micturition was initiated within just a little more than half the time required with the 1 mg. dose. When it is considered that the psychogenic factor was of similar magnitude in both groups, it would appear that in the treatment of established postoperative urinary retention optimal results may be produced with the administration of 2 mg. doses of benzpyrinium bromide. No toxic manifestations or side-effects were observed following injections of either 1 mg. or 2 mg. doses of benzpyrinium bromide.

TABLE 1.—*Results in Cases of Established Urinary Retention Utilizing Benzpyrinium Bromide*

	1 Mg./Cc.				2 Mg./Cc.			
Surgical Procedure	No. of Patients	Voided	No. of Patients Catheterized	(No. of Catheterizations)	No. of Patients	Voided	No. of Patients Catheterized	(No. of Catheterizations)
Appendectomy	7	5	2	(1)	14	12	2	(1)
Cholecystectomy	2	2	..		3	3	..	
Gastrectomy	8	5	2 1	(1) (2)	5	4	1	(1)
Hemorrhoidectomy, fissure, and pilonidal cyst	7	3	2 1 1	(1) (2) (3)	6	6	..	
Herniorrhaphy	8	5	3	(1)	6	6	..	
Hysterectomy, salpingectomy, oophorectomy, and cesarean section	6	3	3	(1)	4	4	..	
Intestinal resection, and release of obstruction and adhesions	..	..	..		2	2	..	
Laparotomy (exploratory)	1	1	..		..	..	..	
Vein ligation	1	..	1	(2)	..	..	..	
Total	40	24	16	(21)	40	37	3	(3)
Male	24	14	10		22	20	2	
Female	16	10	6		18	17	1	

Series 2.—A summarization of the results achieved in the remaining series of 80 patients with established urinary retention is presented in table 2. As in the cases of series 1, the postoperative complication of an atonic bladder developed as a sequel to similar surgical procedures; therapy was instituted and executed in like manner. Of the 40 control patients with diagnosed bladder atonia who were given intramuscular injections of a placebo every two hours, 29, or 72.5%, emptied their bladders by spontaneous voiding. Eleven had to be catheterized a total of 35 times. On an average, normal micturition in this control group occurred 12 hours after the first dose of the placebo was administered. This response occurred after 6.4 injections. The remaining 40 patients of this series were treated with compound W341 administered intramuscularly. Receiving 1 mg. every two hours, 36, or 90%, were able to expel the contents of their full bladders. Only four patients had to be catheterized, requiring a total of 10 catheterizations. Normal micturition was restored on an average of 5¼ hours after the initiation of compound W341 therapy, necessitating 3.6 injections.

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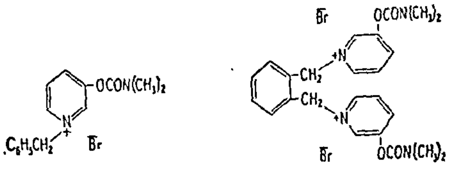

Fig. 1.—Chemical configurations of benzpyrinium bromide (on the left) and compound W341 (on the right).

CLINICAL MATERIAL AND PROCEDURE

Of 1,948 surgical procedures, urinary retention developed in a total of 160 patients. Our study is based on observations made on this group. History and physical examination precluded patients who had urinary disease. The operative procedures were laparotomies of major character in almost all instances. The type of anesthesia and preoperative and postoperative medication were evaluated as to the part each may have contributed to the vesical atonia. Eighty-six of the patients were males. The ages ranged from 12 to 77 years. Postoperative urinary retention was deemed to be established if a patient could not empty the bladder voluntarily within about 11 to 12 hours after the surgical procedure. This impression was confirmed by palpation, percussion, and the clinical picture at that particular moment. To stimulate voiding he was helped not only by sympathetic and persistent nursing care but also by early ambulation,

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Benzpyrinium (Stigmonene) bromide and 1,2-xylylene-bis [1-(3-dimethylcarbamyloxy)-pyridinium bromide] (Cholinergic Compound W341) used in this study were supplied by Warner-Chilcott Laboratories Div., New York 11.

[1] Winter, I. C.: The Pharmacology of Micturition: The Effect of Drugs on the Bladder and Urethra with Autonomic Supply Intact, J. Urol. **46**: 952, 1941.

[2] Gordon, E. J.: Urinary Bladder Atony Complicating Postoperative Course of Surgical Patients: Management with Prostigmin, Urol. & Cutan. Rev. **44**: 115, 1940.

[3] Sakal, E. H.: The Search for Therapeutically Useful Parasympathomimetic Compounds, Journal-Lancet **70**: 474, 1950.

[4] Bookrajian, E. B., and Truter, W.: Stigmonene Bromide in the Diagnosis of Early Pregnancy and the Treatment of Simple Delayed Menstruation, Am. J. M. Sc. **224**: 386, 1952. Cohen, A., and Goldman, J.: The Use of Cholinergic Drugs in the Treatment of Muscle Spasm in Rheumatoid Arthritis: With Special Reference to Stigmonene Bromide, J. Philadelphia Gen. Hosp. **2**: 46, 1951. Decker, A.: The Effect of Stigminene Bromide in Delayed Menstruation: A Clinical Study, Am. J. Obst. & Gynec. **64**: 1137, 1952. Donehue, F. M.: Stigmonene Bromide in the Management of Postoperative Distention, Postgrad. Med. **10**: 341, 1951. Judy, K.: Surgical Evaluation of a New Cholinergic Drug—Stigmonene Bromide, Bull. Jersey City Med. Center **3**: 17, 1951. Mulholland, H. F., and O'Connell, J. H.: Stigmonene Bromide in the Treatment of Muscular Spasm, to be published. Whitaker, J. C., and Wright, L. T.: Abdominal Distention: Treatment with Stigminene Bromide, a New Cholinergic Drug, New York J. Med. **50**: 437, 1950.

which makes it possible for the patient to assume the most natural posture conducive to voiding. At this point, an intramuscular injection of the drug or placebo was administered and repeated every two hours until satisfactory micturition occurred or catheterization became necessary. In the latter instance therapy was continued until the patient voided spontaneously.

A preliminary appraisal of benzpyrinium bromide in the treatment of established urinary retention resulting from atony of the bladder disclosed, however, that the recommended dosage of 1 cc. of a 1:2,000 solution (0.5 mg.) every three hours to a total of five doses was not productive of the desired effect. Since Cohen and coworkers demonstrated clinically the wide therapeutic dosage range of benzpyrinium bromide, it was felt, firstly, that a higher dosage could be employed without ill-effects and, secondly, in so doing the optimal dosage could be established. Furthermore, it was believed that if there was an appreciable difference in the results obtained employing two different doses of the same drug under identical conditions, the use of a true placebo for control purposes would not be essential to the evaluation.

Accordingly, then, in this investigation 40 of the 160 patients received intramuscular injections of a 1:1,000 solution (1 mg.) of benzpyrinium bromide every two hours until the bladder was satisfactorily emptied or catheterization became necessary. A second group of 40 patients received intramuscular injections of 1 cc. of a 1:500 solution (2 mg.) of benzpyrinium bromide at two hour intervals.

Of the remaining 80 patients, 40 received intramuscular injections of a placebo for control purposes and 40 intramuscular injections of 1 cc. of a 1:1,000 (1 mg.) solution of compound W341. The conditions under which compound W341 and the placebo were administered were as identical as possible with those of the two groups that received benzpyrinium bromide.

RESULTS

Series 1.—The results obtained in the series of 80 patients who were treated with intramuscularly administered benzpyrinium bromide, 1 mg. and 2 mg., respectively, are summarized in table 1. Of 40 postoperative patients with established urinary retention, 24, or 60%, were able to empty their bladders satisfactorily when 1 mg. of benzpyrinium bromide was given every two hours. In the remaining 16 patients, who had to be catheterized, the catheter was used 21 times. Voiding without difficulty was effected on an average of 7½ hours after initiation of the drug therapy. The average number of injections was 4.2. In the group of 40 patients in similar circumstances who received 2 mg. of benzpyrinium bromide intramuscularly, 37, or 92.5%, voided with good emptying of the bladder. It was necessary to catheterize three patients only once in each instance. Normal bladder function was reestablished on an average of 4¼ hours after the first dose of benzpyrinium bromide was given. The average number of injections administered was 2.8.

When the results were compared in these two groups of 40 patients each, it was found that when the 2 mg. dose of benzpyrinium bromide had been administered intramuscularly every two hours, the incidence of necessary catheterization was reduced 32.5%. In addition, it should be noted here that the catheter had to be used only three times in the group receiving the 2 mg. dose, while those on the 1 mg. dose required the catheter on 21 occasions. Moreover, on the average, satisfactory micturition was initiated within just a little more than half the time required with the 1 mg. dose. When it is considered that the psychogenic factor was of similar magnitude in both groups, it would appear that in the treatment of established postoperative urinary retention optimal results may be produced with the administration of 2 mg. doses of benzpyrinium bromide. No toxic manifestations or side-effects were observed following injections of either 1 mg. or 2 mg. doses of benzpyrinium bromide.

TABLE 1.—*Results in Cases of Established Urinary Retention Utilizing Benzpyrinium Bromide*

	1 Mg./Cc.				2 Mg./Cc.			
Surgical Procedure	No. of Patients	Voided	No. of Patients Catheterized	(No. of Catheterizations)	No. of Patients	Voided	No. of Patients Catheterized	(No. of Catheterizations)
Appendectomy	7	5	2	(1)	14	12	2	(1)
Cholecystectomy	2	2	..		3	3	..	
Gastrectomy	8	5	2 1	(1) (2)	5	4	1	(1)
Hemorrhoidectomy, fissure, and pilonidal cyst	7	3	2 1 1	(1) (2) (3)	6	6	..	
Herniorrhaphy	8	5	3	(1)	6	6	..	
Hysterectomy, salpingectomy, oophorectomy, and cesarean section	6	3	3	(1)	4	4	..	
Intestinal resection, and release of obstruction and adhesions	..	..	..		2	2	..	
Laparotomy (exploratory)	1	1	..		..	..	..	
Vein ligation	1	..	1	(2)	..	..	..	
Total	40	24	16	(21)	40	37	3	(3)
Male	24	14	10		22	20	2	
Female	16	10	6		18	17	1	

Series 2.—A summarization of the results achieved in the remaining series of 80 patients with established urinary retention is presented in table 2. As in the cases of series 1, the postoperative complication of an atonic bladder developed as a sequel to similar surgical procedures; therapy was instituted and executed in like manner. Of the 40 control patients with diagnosed bladder atonia who were given intramuscular injections of a placebo every two hours, 29, or 72.5%, emptied their bladders by spontaneous voiding. Eleven had to be catheterized a total of 35 times. On an average, normal micturition in this control group occurred 12 hours after the first dose of the placebo was administered. This response occurred after 6.4 injections. The remaining 40 patients of this series were treated with compound W341 administered intramuscularly. Receiving 1 mg. every two hours, 36, or 90%, were able to expel the contents of their full bladders. Only four patients had to be catheterized, requiring a total of 10 catheterizations. Normal micturition was restored on an average of 5¼ hours after the initiation of compound W341 therapy, necessitating 3.6 injections.

A comparison of the results produced with compound W341 and a placebo in these two groups of 40 patients each reveals, firstly, that when the 1 mg. dose of compound W341 was given intramuscularly every two hours the incidence of necessary catheterization was reduced 17.5%, secondly, a drop of 28.6% in the individual use of the catheter was effected, and, thirdly, on the average, normal micturition was reestablished in considerably less than one-half the time required with the placebo. Since there should be no reason to differentiate between the psychogenic factors involved in those patients receiving compound W341 and those getting the placebo, it may be concluded that the 1 mg. dose of compound W341 was singularly effective in relieving the postoperative bladder atony. Compound W341 was well tolerated. In one instance only, after the 12th dose, was a side-reaction, diarrhea, observed.

Table 2.—*Results in Cases of Established Urinary Retention Utilizing Cholinergic Compound W341 and Placebo*

	Placebo				Compound W341, 1 Mg./Cc.			
Surgical Procedure	No. of Patients	Voided	No. of Patients Catheterized	(No. of Catheterizations)	No. of Patients	Voided	No. of Patients Catheterized	(No. of Catheterizations)
Appendectomy	3	3	..		8	8	..	
Cholecystectomy	6	3	2	(1)	4	4	..	
	..	..	1	(5)	..	..	..	
Gastrectomy	4	2	1	(4)	5	4	1	(3)
	..	..	1	(6)	..	..	..	
Hemorrhoidectomy, fissure, rectal amputation, and pilonidal cyst	7	5	1	(3)	4	4	..	
	..	..	1	(7)	..	..	..	
Herniorrhaphy	11	8	2	(1)	8	6	1	(5)
	..	..	1	(4)	..	..	1	(1)
Hysterectomy and salpingo-oophorectomy	7	7	..		5	4	1	(1)
Intestinal resection	1	..	1	(2)	1	1	..	
Nephrectomy	..	..	..		1	1	..	
Mastectomy	1	1	..		2	2	..	
Laparotomy (exploratory)	..	..	..		1	1	..	
Skin graft	..	..	..		1	1	..	
Total	40	29	11	(35)	40	36	4	(10)
Male	21	14	7		19	16	3	
Female	19	15	4		21	20	1	

COMMENT

A graphic illustration of the results obtained in this investigation of a total of 160 patients with established postoperative urinary retention is presented in figure 2. On examination, it will be found that the 2 mg. dose of benzpyrinium and the 1 mg. dose of the cholinergic compound W341 manifest very high therapeutic effectiveness. With respect to the former, this finding parallels that of Cohen and co-workers and of Decker. However, when a comparison is made between the results produced with the 1 mg. dose of benzpyrinium and the placebo it becomes apparent that, unexpectedly, fewer patients receiving the placebo had to be catheterized. Yet, as anticipated, these patients required individually and collectively the largest number of catheterizations to restore normal micturition. Inasmuch as it was endeavored to maintain uniform conditions throughout the study, it is difficult to evaluate the factors responsible for this incongruity. One that might have a bearing on the results is that in the group receiving the 1 mg. dose of benzpyrinium there were about twice as many appendectomies and gastrectomies as in the group that received the placebo. These operative procedures on the bowel and stomach may or may not be significant. The figures in table 3 indicate that the average incidence of postoperative urinary retention is 8.3%, no matter what type of surgical maneuver is performed; however, it will be noted that with operations on the pelvic viscera, e. g., total hysterectomy, or in the inguinal region, the incidence rises to about 10%.

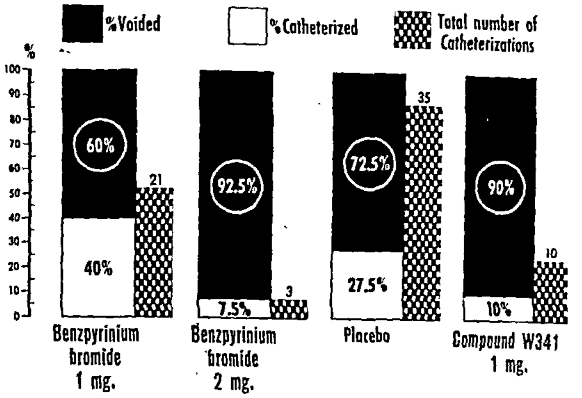

Fig. 2.—Comparative results in cases of established urinary retention with benzpyrinium and W341.

Following rectal surgery the incidence of urinary retention is more than twice that following laparotomies. This might be a reflection of the close association between the nerve supply of the bladder and rectum via the inferior hypogastric and pelvic plexuses. It is possible that trauma to this innervation during the operation causes vesical dysfunction.

Gastric operations contributed the highest percentage of cases with bladder atonia. One of many factors involved in the relatively high incidence of this complication may be the use of comparatively large amount (2 to 3 gm.) of thiopental (Pentothal) sodium for supplemental anesthesia in these gastrectomies. The average amount of thiopental sodium used for all other operations in this study is usually about 0.5 gm. or slightly higher.

Table 3.—*Incidence of Postoperative Urinary Retention*

Type of Operation	No. of Cases	Cases of Urinary Retention	Percentage of Urinary Retention
Appendectomy	620	32	5.2
Cholecystectomy	203	15	7.4
Gastrectomy	124	22	17.7
Hemorrhoidectomy, fissure, pilonidal cyst, and rectal amputation	150	24	16.0
Herniorrhaphy	347	34	9.8
Hysterectomy	180	17	9.4
Intestinal resection	58	3	5.2
Laparotomy, salpingectomy, oophorectomy, and nephrectomy	138	8	5.8
Mastectomy	42	3	7.1
Vein ligation	71	1	1.4
Skin graft	15	1	6.7
	1,948	160	Average 8.3

SUMMARY AND CONCLUSIONS

Benzpyrinium (Stigmonene) bromide and the experimental cholinergic compound W341 are clinically evaluated in a total of 160 patients with established postoperative urinary retention. In the absence of urinary tract disease the 2 mg. dose of benzpyrinium bromide as well as the 1 mg. dose of the cholinergic compound W341 has been found to considerably shorten the duration of vesical atonia, thus reducing markedly the necessity for catheterization and/or the number of individual catheterizations. Episodes of toxicity have not been encountered with the administration of either the 1 mg. or 2 mg. dose of benzpyrinium bromide or the 1 mg. dose of compound W341. Both compounds were found to be effective but gentle in action and safe for both old and young patients.

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OFFICE USE OF THE FROG TEST FOR PREGNANCY

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The use of the male frog for the determination of pregnancy has been described and discussed frequently during the past four years. Most of the articles concerning the test have been written by pathologists or persons engaged in institutional work or research. Only a few reports have been made by clinicians who engage in obstetric practice and who perform this pregnancy test in their own offices. As a clinician engaged in the practice of obstetrics and gynecology, I wish to report on my experiences with the Rana pipiens test during the past three years. In that time, a total of 450 pregnancy tests were performed in my office on 350 urine and 100 serum samples.

The Rana pipiens test for pregnancy is based on the release of sperm in the urinary bladder of male frogs after they have been injected with an adequate amount of chorionic gonadotropin. This amount is approximately 1 I. U. per gram of frog. Chorionic gonadotropin appears in the serum and urine of pregnant women between the 22nd and the 25th cycle day. A positive frog test may result as early as the 30th cycle day. Most urine or serum of a pregnant woman produces a positive reaction by the 35th cycle day. Our earliest positive responses were obtained on the 34th cycle day.

PROCEDURE

Adult male frogs are maintained in a covered enamel pan in a biological refrigerator and kept at a temperature between 0 and 10 C. At this temperature, the frogs remain in a state of hibernation and require no food or attention. The bottom of the pan is covered with fresh water that is changed daily. Few frogs die, and most of them remain in a healthy state for months at a time. The sex of the frog should be carefully noted. The male is distinguished by large pigmented thumbs, inflated air sacs, and the ability to croak.

Weighing the Frogs.—We determine the amount of urine or serum to be injected on the basis of the frog's weight. To our knowledge no laboratory has heretofore weighed the frogs to determine the amount of urine or serum to be injected. Several writers have pointed out the higher sensitivity of the smaller frogs when a fixed amount of chorionic gonadotropin was injected. It would seem logical, therefore, to adjust the dosage according to the frog's weight, which may range from 20 to 60 gm. Our dosage schedule is 1 cc. of urine or serum for each 10 gm. of frog. When urine concentrate is used, 1 cc. of the concentrate is injected for every 15 gm. of frog.

Preliminary Study of Frog's Urine.—After the frog is weighed, he is placed in a clean, dry jar with a perforated cover to thaw out for a brief period. The frog's urine is routinely checked prior to injection of the patient's urine or serum in order to assure absence of sperm. A frog usually can be made to void if its thighs are flexed and it is pressed down on a glass slide. Urine can also be obtained from the frog by inserting a capillary pipet into the cloaca. The urine is examined on a glass slide under a microscope to make certain that there are no sperm in the urine that will give false positive reactions.

Injection of Human Urine.—Fasting morning urine is used. The specific gravity should be at least 1.010, and filtration is advisable. The necessary amount of urine (1 cc. per 10 gm. of frog) is injected into one frog. The injection may be either intraperitoneal or in the dorsal lymph sac; care should be taken to avoid leakage of urine back through the hole made by the hypodermic needle. The frog is then put back in the jar. From 30 minutes to three hours later, the frog's urine is obtained and examined for sperm. A positive response may appear between 30 to 50 minutes after injection. If no sperm are demonstrated within three hours, it is necessary to confirm this negative response by concentrating the urine and injecting it into two other frogs. Scott's kaolin adsorption method is used.[1] By this method, 1 cc. of urine concentrate contains chorionic gonadotropin equivalent to that in 20 cc. of urine. This method of concentration is a relatively simple procedure that can be performed by any qualified laboratory technician in approximately 30 minutes. The resulting solution is injected into two frogs, both of which have been checked as to sex, weight, and absence of sperm in the urine; 1 cc. of the concentrate is injected for each 15 gm. of frog. The injection of two frogs eliminates the possibility of a false negative reaction that might result from a lack of individual reaction in one animal. If, in three hours, there are no sperm demonstrable from either frog, the negative response is accepted. If either frog shows a positive response, the test is considered positive. If less than two weeks have elapsed since the patient's last period (if it is less than the

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[1] Cutler, J. N.: An Appraisal of the Male North American Frog (Rana pipiens) Pregnancy Test with Suggested Modification of the Original Technique, J. Lab. & Clin. Med. 34: 554, 1949.

42nd cycle day), all negative tests should be repeated in one week. Also, if a history of menstrual irregularity precludes the accurate determination of the cycle day, it is advisable to recheck negative responses in one week.

Injection of Human Serum.—Unoxalated blood, 20 cc., is centrifuged, and the resultant serum is injected into each of two frogs; 1 cc. for each 10 gm. of frog. Injections are intraperitoneal. The frog's urine is examined for sperm between 30 minutes and three hours after injection. A positive response in either frog constitutes a positive test for pregnancy. If neither frog responds, the negative response is accepted and the test is completed unless it is performed prior to the 42nd cycle day. In such an event, it is advisable to repeat the test in one week.

MODIFICATIONS OF PROCEDURE

At first, we attempted to test random urine samples from patients who were being seen in the office throughout the day. The frog mortality rate was high with the random use of urine, however, and it became apparent that the fasting morning specimens were far more satisfactory. Moreover, it is evident that the latter contains a higher concentration of chorionic gonadotropin.

By weighing the frogs to determine the amount of serum or urine to be injected, we feel that we have improved the consistency of our result and that each frog is injected with the maximum amount of urine or serum that it will tolerate. The importance of the use of duplicate frogs is self-evident.

The initial examination of the frog's urine to exclude the presence of sperm prior to injection of human urine or serum may eliminate an occasional false positive reaction. While the male frog does not release sperm in the urine under ordinary laboratory conditions, it is possible that recent capture or excessive handling cause the presence of sperm prior to injection of the chorionic gonadotropin; therefore, all of our frogs are checked initially in this regard. Since instituting this procedure in our last 150 tests, we have found sperm at the time of the initial urine examination on three occasions.

When a negative response is obtained with fasting morning urine, two additional frogs are injected with urine concentrate. In the series of 350 tests of urine samples, this routine has prevented 20 false negative responses.

We do not accept a negative response prior to the 42nd cycle day. This rule has applied to the use of either urine or serum. In our 450 tests, however, we have avoided only five false negative responses by following this rule, inasmuch as most urine and serum samples cause a positive response by the 35th cycle day.

PATHOLOGICAL PREGNANCIES

Our series includes three cases of hydatidiform moles. In the most outstanding case, diagnosis was established at three months, by the fact that a positive frog test was obtained from a urine dilution of 1:700. In no instance of threatened abortion in patients in whom we tested urine and serum did the pregnancy continue after a negative response to the frog test was obtained. In many, however, the response was positive on the day the abortion occurred, and in one of these the response was still positive the day after delivery of secundal tissue.

There seems to be a definite relationship between the number of sperm released and the amount of chorionic gonadotropin injected. Some authors have stated that there are no intergrades of response in this reaction. In very early pregnancy, in abortion patients, and in instances in which unconcentrated urine containing little chorionic gonadotropin is used, the number of sperm is definitely fewer. We repeated as many as seven tests on one patient undergoing an abortion and noted a gradual diminution in response corresponding to the separation of chorionic villi. During very early pregnancy, urine frequently produces only a few sperm. Repetition of the test a few days later usually shows a marked increase in sperm response. There is also a definite time-dose relationship that has already been pointed out by Haskin and Sherman.[2] The urine from one of our patients with a hydatidiform mole showed a markedly positive response after only 10 minutes. On diluting the urine up to 1:700, the time required for a positive response lengthened and the number of sperm diminished.

RESULTS WITH URINE SPECIMENS

In 350 urine tests, there were 202 correct positive responses. There were 20 negative responses with unconcentrated urine, but, when the urine concentrate was injected, the response became positive. An additional two responses were negative prior to the 42nd cycle day, but correctly positive when repeated one week later.

There were 137 correct negative responses in the series. There was one false negative response on the 56th cycle day. A positive response was obtained on the 64th cycle day.

There were four false positive responses in this series, details of which are of interest. A 22-year-old unmarried woman with a large uterine fibroid was tested prior to surgery. A weak positive response was obtained with one frog on the injection of the urine concentrate. A second test two days later was negative with two frogs. In a 28-year-old woman who had been sterile for six years and who had amenorrhea, concentrated urine gave a weak positive response. In a 44-year-old woman with amenorrhea, concentrated urine gave a positive response with one frog only. A repeat test elicited a weak positive response in only one of two frogs. In a 52-year-old woman a weak positive response was elicited in only one of two frogs. A repeat test was negative.

In addition, there were two patients whose urine concentrate elicited a weak positive response a few weeks after abortion. Whether these two represented false positive responses, a slow falling chorionic gonadotropin titer remaining from the previous pregnancy, or a new pregnancy that later terminated in abortion, it is impossible to state.

There were four other cases in which strong positive responses were elicited with unconcentrated urine but in which pregnancy could not be proved. In these four cases, however, there was a possibility of mixed specimens and inaccurate histories and follow-ups, and we have, therefore, classified them as possible false positive responses.

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[2] Haskins, A. L., Jr., and Sherman, A. I.: Quantitative Bio-Assay of Chorionic Gonadotropin with the Male Frog, Endocrinology 44: 542, 1949.

It is of interest to note that all of the definitely false positive results were obtained with urine concentrate. Several authors have suggested that an excessive amount of urine equivalent might produce false positive reactions. This theory may explain the fact that we had no false positive reactions or even possible false positive reactions in 100 serum tests.

RESULTS OF SERUM TESTS

During the past 12 months, the use of serum instead of urine has been proved distinctly advantageous. The serum specimens can be obtained at any time along with routine blood studies and even without the patient's knowledge. In 100 consecutive serum tests, as stated previously, we had no false positive results and only one possible false negative response.

In the 100 consecutive serum tests, there were 54 correct positive responses and 39 correct negative responses. There were six pathological pregnancies that cannot rightfully be classified as false negative responses. One patient had an ovarian pregnancy, and five aborted; in these five, the responses were all negative except one. In one patient, the serum gave a negative response on the 38th cycle day. Six days later on the 44th cycle day, the patient aborted a pathological ovum. In another patient, there was a negative response on the 60th cycle day. A repeat test on the 78th cycle day was positive. The patient, however, aborted on the 79th cycle day. A negative response was obtained on the 60th cycle day in a 43-year-old woman. Ten days later, she spontaneously aborted necrotic placental tissue. A negative response was obtained on the 51st cycle day in a 27-year-old woman; she aborted the same day. A negative response was obtained on the 50th and 72nd cycle days after a dilatation and curettage. A weak positive response (one frog only) was obtained on the 101st day; the patient aborted on that day.

This series of 100 serum tests was performed between April, 1952, and April, 1953. This includes the summer months during which a number of writers have reported a high incidence of false negatives because of the apparent unreliability of the frogs during warm weather. Our high accuracy during the summer months as compared to that of others may be the result of cool climate, proximity to the source of frogs, shipment of frogs by air, refrigeration of frogs, higher concentration of chorionic gonadotropin in serum as compared to that found in urine,[3] and weighing the frogs to determine the dosage. This latter factor is probably more important in the summer months when there seems to be a greater variation in the size of the frogs (from 20 to 60 gm.). We have demonstrated that 60 gm. frogs fail to give a positive response to the same amount of chorionic gonadotropin hormone that produces the release of sperm in a 20 to 30 gm. frog.

The advantages of the use of serum as compared to fasting morning urine are self-evident. They are (1) decreased toxicity of serum to the frog, (2) elimination of the urine concentration procedure with all negative responses, (3) ability to perform test at any time, (4) less opportunity for substitution of specimens, and (5) elimination of transportation of urine to laboratory. We still perform pregnancy tests with urine specimens when this is more convenient.

ACCURACY AND USEFULNESS

The accuracy of the frog test has been reported as ranging from 54 to 99%. The methods of performing the test are as varied as the results. It is noted in many articles that unconcentrated urine was used in small amounts and that the frogs were not refrigerated and were used more than once. Inasmuch as this is a test for the presence of a chorionic gonadotropin in the urine, the incidence of false negative responses will be higher in those laboratories in which the urine is unconcentrated, frogs are unhealthy, small amounts of urine are injected, and negative responses are accepted in the very earliest days of pregnancy. Analyses of various authors' results should receive the closest scrutiny. It is extremely important to know what percentage of their tests were performed on pathological pregnancies. Nearly everyone agrees on the infrequency of false positive reactions, but there is considerable difference of opinion on the frequency of false negative responses. Unless a physician is familiar with each patient and her subsequent clinical course, it is impossible to evaluate accurately the results and validity of each test. For example, in a woman who presents a clinical history and impression of pregnancy, the response to the frog test may be negative; spontaneous abortion occurs 12 hours after the test is performed. Is this to be classified as a false negative response? Our series includes nine pathological pregnancies in which the level of chorionic gonadotropin was apparently too low to elicit a positive response before the spontaneous abortion occurred. Ectopic pregnancies show positive pregnancy tests only about half of the time, no matter which type of test is used. Furthermore, in any large series, there are always several possible early pregnancies and abortions that defy even the pathologist in the establishment of an absolute diagnosis. It is my feeling that the accuracy of the frog test in normal pregnancies is at least 98%, provided that the routines previously described are strictly followed. In cases of pathological pregnancies, such as missed abortions, ectopic pregnancies, threatened abortions, and hydatidiform moles, the frog test is extremely helpful to the clinician in treatment and prognostication. Its speed and simplicity give it distinct advantages over other types of pregnancy tests in present use. If, in a woman who has shown clinical signs of pregnancy, response to the frog test is not positive after the 42nd cycle day, I would not hesitate to predict that the pregnancy is a pathological one that will have an unsuccessful outcome.

A number of obstetricians have stated that they performed so few pregnancy tests that they have no need for an office procedure and that although pregnancy tests are helpful in pathological cases, in the diagnosis of normal pregnancy, a waiting period of a few weeks is of no concern.

A woman today is often extremely anxious to receive a diagnosis of pregnancy as early as possible. She may have commitments pertaining to a job, housing problems, a husband in service, and numerous and adequate reasons far more important than the mere satisfaction of her curiosity. Patients demand an early diagnosis of pregnancy and are grateful for it. Since the test has been available to me in my office, the frequency with which I request it has multiplied many times, the service to the patients is greater, and, in cases of pathological pregnancy, medical care is of a higher standard. The frog test is also of value as a routine preoperative test. The most astute diagnostician will sometimes discover an early pregnancy at the time of laparotomy; routine preoperative frog tests would help eliminate this error.

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[3] Smith, R. A.; Albert, A., and Randall, L. M.: Chorionic Gonadotropin in the Blood and Urine During Early Pregnancy, Am. J. Obst. & Gynec. 61: 514, 1951.

CONCLUSIONS

The frog test, with either serum or urine, for pregnancy is recommended as a routine office procedure. The use of serum is much simplier and apparently equally or more accurate. Seasonal variations in frog reactivity has proved to be no handicap if strict adherence to the routine procedures outlined is maintained. On the basis of the results of the 450 tests reported, I believe the accuracy of the frog test, in normal pregnancies, is at least 98%. In instances of pathological pregnancies, the result of the frog test is helpful in determining prognosis and instituting treatment.

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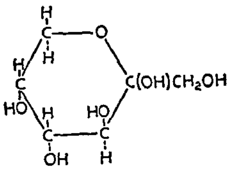
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. Stormont, M.D., *Secretary.*

Fructose.—Levugen (Mead Johnson).—$C_6H_{12}O_6$.—M.W. 180.16. —Levulose.—Fructose is prepared by the inversion of aqueous solution of sucrose and subsequent separation of fructose from glucose. The structural formula of fructose may be represented as follows:



Actions and Uses.—Fructose (levulose) like dextrose, administered intravenously in solution, is useful for parenteral carbohydrate alimentation when either fluid or calories are required to replace or supplement the oral consumption of water or food. Fructose is more rapidly metabolized and more rapidly converted to liver glycogen than is dextrose. When infused at comparable rates, it results in lower levels of blood sugar and less urinary spillage. Fructose is metabolized or converted to glycogen in the absence of insulin, but the clinical application of this has not been fully determined.

Fructose can be infused at the same rate as but in twice the concentration of dextrose, with better retention and less disturbance of fluid balance. Thus fructose can be employed safely to supply calories more rapidly than either dextrose or invert sugar (half dextrose and half fructose) and to provide more nearly the carbohydrate requirements of patients who need parenteral alimentation. Although fructose is not toxic, excessively rapid intravenous infusion is contraindicated as with other parenteral solutions.

Dosage.—Fructose is administered by intravenous infusion as a 10% solution in water. It can be administered at the same rate as a 5% solution of dextrose. The total daily amount required varies with the patient. For adults the usual initial dose is 1 liter; the average dose, 2 liters; and the maximum dose, 3 liters. For children the total daily amount is determined on the basis of the size and total blood volume of the child. In infants this usually ranges from 0.1 to 1 liter and in children from 0.2 to 2 liters. If administered in quantities in excess of the amounts indicated, any unutilized portion will be excreted in the urine.

Since fructose decomposes in alkaline solution, substances which would raise the pH to values above 7.0 should be added only if the solution is to be administered promptly. Compounds of calcium and barium form insoluble complexes when the pH exceeds 7.0 and are therefore incompatible. Cloudy solutions should not be used.

Tests and Standards.—

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Solutions. (10%) *Physical Properties:* The solution is clear and colorless. The specific gravity is 1.033-1.039, the refractive index is 1.346-1.348, and the pH is 3.0-3.5.

Identity Tests: To 5 ml. of hot alkaline cupric tartrate T.S. add a few drops of 10% fructose: a red precipitate of cuprous oxide appears *(presence of reducing sugars).*

Prepare a 0.05% solution of resorcinol in hydrochloric acid diluted 1:1. To 5 ml. of the solution add 1 ml. of 10% fructose and heat in a boiling water bath for 2 min.: a cherry-red color appears *(presence of ketohexose)*

Prepare a solution containing 1 gm. of phenylhydrazine hydrochloride and 1.5 gm. of sodium acetate in 10 ml. of water by heating the mixture to about 60°, cooling, and filtering. To 5 ml. of this solution in a test tube add 1.5 ml. of 10% fructose. Place the test tube in a boiling water bath for about 5 min. Crystals begin to appear in 2.0-2.5 min. Cool the reaction mixture, filter it, and wash the precipitate with three 10 ml. portions of water followed by single washings with 5 ml. of alcohol and 5 ml. of ether. Dry the residue at 105° for 30 min.: the yellow osazone formed melts at 205-210° (with decomposition).

The specific rotation, $[\alpha]25,\text{D}$, of 10% fructose is between —90.0 and —94.5°.

Purity Tests: To 10 ml. of 10% fructose add 1 ml. of ammonium oxalate T.S.: *the solution remains clear for 1 min. (absence of calcium).*

To 50 ml. of 10% fructose add 2 ml. of nitric acid and exactly 10 ml. of 0.02 *N* silver nitrate. Heat the mixture on a steam bath to coagulate the silver chloride, cool, and add 5 ml. of nitrobenzene and 2 ml. of ferric ammonium sulfate T.S. Titrate the excess silver nitrate with 0.02 *N* ammonium thiocyanate. Each milliliter of 0.02 *N* silver nitrate consumed is equivalent to 0.0007092 gm. of chloride: the amount of chloride does not exceed 0.025%.

Dilute 1 ml. of 10% fructose to 25 ml. with water, add 1 ml. of barium chloride T.S., shake, and allow the mixture to stand for 1 min.: the turbidity does not exceed that of 0.2 ml. of 0.02 *N* sulfuric acid diluted to 25 ml., and treated in the same manner *(presence of not more than 0.2% sulfate).*

Transfer to a test tube 10 ml. of 10% fructose. Add 5 ml. of ether and shake vigorously. Separate the layers, transfer 2 ml. of the *ether layer* to a test tube, and add 1 ml. of a 1% solution of resorcinol in hydrochloric acid: a slight pink color may form but no cherry-red color appears immediately *(absence of hydroxymethylfurfural).*

Transfer exactly 10 ml. of 10% fructose to a tared crucible and remove the water by evaporation on a steam bath. Char the residue, cool, add 1 ml. of concentrated sulfuric acid, and continue ignition until no carbon remains: the amount of residue does not exceed 0.5%. Save this residue for the heavy metals test.

To the residue from ashing add a mixture of 30 ml. of diluted hydrochloric acid and 3 ml. of bromine T.S., cover the crucible, and boil gently for 10 min. Filter, and wash the filter and residue with 25 ml. of hot water. Evaporate the filtrate to dryness, dissolve the residue in 15 ml. of water, add 2 ml. of diluted acetic acid, and dilute to 25 ml. with water. Prepare a standard with 0.5 ml. of U. S. P. standard lead solution, and treat it with the same quantities of the same reagents and in the same manner. Run a *U. S. P. heavy metals test:* the amount of heavy metals does not exceed 5 ppm.

Assay: (Fructose) Prepare a 0.4% solution of fructose and using 20 ml. of this solution assay for fructose as directed in *Official Methods of Analysis of the Association of Official Agricultural Chemists,* ed. 7, A.O.A.C., Washington, 1950, p. 508 and 512-513, par. 29.40, 29.41, 29.54, and 29.55. The amount of fructose is not less than 95.0 nor more than 105.0% of the labeled amount.

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Approved programs are listed as follows: a section on internships based on the state and city in which the hospital is located as well as one based on the type of internship being offered, a section on residency programs by specialties, and a section recapitulating the programs for which each hospital is approved.

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The publishing of this report and the lists of approved services is made possible through the helpful cooperation of the medical staffs and administrators of hospitals in which approved training programs are being conducted. The Council takes this opportunity to express its appreciation for the excellent support it has received from them, as well as for the valuable contribution of the administrative officers of medical schools and the federal services this year, as in the past. To the following organizations with which the Council collaborates in the approval and listing of residency programs, the Council wishes to make grateful acknowledgment:

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INTERNSHIPS BY TYPE OF SERVICE

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CONCLUSIONS

The frog test, with either serum or urine, for pregnancy is recommended as a routine office procedure. The use of serum is much simplier and apparently equally or more accurate. Seasonal variations in frog reactivity has proved to be no handicap if strict adherence to the routine procedures outlined is maintained. On the basis of the results of the 450 tests reported, I believe the accuracy of the frog test, in normal pregnancies, is at least 98%. In instances of pathological pregnancies, the result of the frog test is helpful in determining prognosis and instituting treatment.

511 Lowry Medical Arts Bldg. (2).

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

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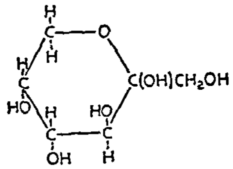

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INTERNSHIPS BY TYPE OF SERVICE

A breakdown of the number of internships filled and vacant by type of service is shown in table 2. The number of approved hospitals offering internships in each category is also included. There were a total of 10,548 internships of all types reported by approved hospitals as of Sept. 1, 1952. Of these, 9,497, or 90%, were rotating. This represents an increase in this type of internship of approximately 6% over the previous year.

TABLE 1.—*Approved Hospitals and Internships, 1943-1953*

Year*	Number of Hospitals	Number of Internships
1943	760	8,180
1944†	766	5,602
1945	785	8,429
1946	798	8,584
1947	764	8,539
1948	807	9,118
1949	807	9,124
1950	790	9,398
1951	828	10,044
1952	865	11,467
1953	856	11,006

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* Year of publication.
† Quota year.
(U. S. Army, U. S. Navy Hospitals and those outside the United States not included in 1943 to 1947 figures.)

Approximately 9%, or 921 internships offered last year, were straight services, while 1%, or 130, were of the mixed type. A total of 7,645 interns were reported on duty as of Sept. 1, 1952. This figure includes second year interns and graduates of foreign medical schools as well as first year interns from schools in the United States. Considering the number of these latter graduates, it can be estimated that from 1,300 to 1,400 internships in the United States are being filled by graduates of schools outside the U. S.

The percentage of internships filled varied somewhat according to type, with 80% of straight internships, 78% of the mixed type, and 72% of rotating internship positions occupied. The comparatively low percentage for the rotating type could be anticipated in view of the large number of these internships available.

The percentage of internships filled has remained the same for the past two years, 72%. During this period, hospitals have reported internship vacancies numbering about 3,000; 3,111 for 1951 and 2,903 for 1952. In considering the problem of the shortage of interns, this over-all figure can be considered more accurate than that obtained by comparing the total number of internships available with the annual number of medical school graduates in this country.

TABLE 2.—*Number of Internships by Type of Service, 1952-1953*

Type of Internship	Number of Approved Programs	Number of Internships		
		Filled Sept. 1, 1952	Vacant Sept. 1, 1952	Percentage Filled Sept. 1, 1952
Rotating General	799	6,698	2,653	72
Other Rotating	61	115	31	78
Totals	860	6,813	2,684	72
Mixed	21	102	28	78
Straight				
Internal Medicine	72	362	71	84
Pediatrics	37	117	29	80
Surgery	58	251	91	73
Totals	167	730	191	79
Grand Totals	1,048*	7,045	2,903	72

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* Number of internship programs in 853 approved hospitals.

INTERNSHIPS BY TYPE OF HOSPITAL CONTROL

Statistical data relative to the number of internships considered from the standpoint of hospital control are given in table 3. Of the total number of interns on duty as of Sept. 1, 1952, the federal hospitals accounted for approximately 6%, other governmental hospitals (nonfederal) 36%, and the nongovernmental group, 58%. Approximately 68% of the internships offered in federal hospitals were filled. The relatively low percentage for these hospitals was due in large part to the fact that internships in Veterans Administration hospitals were less than one-third filled; other federal hospitals showed internship occupancy rates from 74% in the U. S. Naval hospitals to 99% for the United States Public Health Service hospitals, all being above the occupancy rate for the United States as a whole. Internships in governmental hospitals of the nonfederal group were also comparatively well filled, ranging from 79% in hospitals under state control to 92% in city-county hospitals. As was the case last year, one of the lowest occupancy rates was for the church-controlled group, with 64% of these internships filled.

TABLE 3.—*Number of Internships by Type of Hospital Control, 1952-1953*

Control	Number of Approved Hospitals	Number of Internships		
		Filled Sept. 1, 1952	Vacant Sept. 1, 1952	Percentage Filled Sept. 1, 1952
Federal				
U. S. Army	9	174	17	91
U. S. Navy	13	125	43	74
U. S. Public Health Service	5	71	1	99
Veterans Administration	13	67	147	31
Other Federal	2	23	7	77
Totals	42	460	215	68
Governmental (Non-Federal)				
State	24	586	158	79
County	34	734	134	85
City	56	1,199	295	80
City-County	14	235	20	92
Totals	128	2,754	607	82
Non-Governmental				
Church-Related	269	1,555	871	64
Non Profit Assn.-Corp.	361	2,476	1,071	70
Other Non Profit	40	350	124	74
Other Non-Governmental	13	50	15	72
Totals	683	4,431	2,081	68
Grand Totals	853	7,645	2,903	72

It should be noted also that the average number of internships available in these hospitals is 9, compared to 16 for the federal hospitals and 19 for the other government institutions. The failure of the church-controlled hospitals to fill at least two-thirds of their requested number of internships might be expected to have an even more serious effect on their intern programs than would be the case if their intern staffs were larger.

INTERNSHIPS BY MEDICAL SCHOOL AFFILIATION AND HOSPITAL BED CAPACITY

For purposes of this report and in the list of approved internships, hospitals have been classified as "major teaching," "minor teaching," and "nonaffiliated," on the basis of the extent to which these hospitals participate in a medical school's undergraduate teaching program. Thus, a "major teaching" hospital is one which has been designated by a medical school as being a major unit in its undergraduate clinical clerkship program, a "minor teaching" hospital is one utilized to a limited extent for undergraduate instruction, and a "nonaffiliated" hospital is one which does not participate in such a program.

Of the total number of approved hospitals last year, 146, or 17%, were designated as major units in a medical school program. They offered 3,712 internships, or 35% of all positions available (table 4). There were 88 hospitals, or 10%, classified as minor teaching units in which 1,105 internships were offered, representing about 10% of the total. Hospitals without medical school affiliation numbered 619, or 73% of the total number of hospitals approved. In this group, there were 5,731 internships as of Sept. 1, 1952, or about 55% of the total number.

The highest percentage of internships filled, 85%, was in the group of major teaching hospitals of 325 to 399 bed size. Nonaffiliated hospitals of 176 beds or less had the lowest percentage of internships filled, 58%. Aside from this group, however, there were no great differences in the percentages of positions filled in comparing the nonaffiliated hospitals with those classified as "minor teaching." In one group, those of 325 to 399 bed capacity, nonaffiliated hospitals filled a higher percentage, 67%, than did those of the same range in the minor teaching group, which had 63% of their internship positions occupied. Considering the groups as a whole, the major teaching hospitals were the most successful in obtaining interns, with 81% of all internships filled. Minor teaching hospitals had 70% of their positions occupied, and the nonaffiliated group, 67%.

In general, hospitals of larger bed capacities, irrespective of medical school affiliation, obtained higher proportions of interns sought than did the smaller hospitals. Combining the data for all three groups, major, minor, and nonaffiliated hospitals, the percentages of internships filled in hospitals of bed capacities of 176 or under, 250 to 324 beds, and over 400 beds were respectively 60, 70, and 80%.

TABLE 4.—*Number of Internships by Medical School Affiliation and Bed Capacity, 1952-1953*

Classification	Number of Approved Hospitals	Number of Internships: Filled Sept. 1, 1952	Vacant Sept. 1, 1952	Percentage Filled Sept. 1, 1952
Non-Affiliated				
Under 176 beds	138	388	285	58
176-249	187	792	496	61
250-324	148	971	464	68
325-399	57	439	219	67
400-over	89	1,276	401	76
Totals	619	3,866	1,865	67
Major Teaching				
Under 176 beds	10	36	18	67
176-249	22	121	70	63
250-324	14	138	49	74
325-399	15	193	34	85
400-over	85	2,520	533	82
Totals	146	3,008	704	81
Minor Teaching				
Under 176 beds	9	36	15	71
176-249	21	118	73	62
250-324	17	134	53	72
325-399	15	119	71	63
400-over	26	364	122	75
Totals	88	771	334	70
Grand Totals	853	7,645	2,903	72

INTERNSHIPS BY CENSUS REGION AND STATE

The number of internships filled and vacant by states, with a recapitulation by census region, is given in table 5. The East North Central states had the largest percentage of internships filled, 76%, slightly above the national average. All other regional areas showed percentages approximating that for the United States as a whole. The relatively low percentage of internships filled in Mon-

TABLE 5.—*Number of Internships by Census Region and State, 1952-1953*

Census Region and State	Number of Approved Hospitals	Number of Internships: Filled Sept. 1, 1952	Vacant Sept. 1, 1952	Percentage Filled Sept. 1, 1952
New England				
Maine	4	17	7	71
New Hampshire	1	16	..	100
Vermont	2	17	3	85
[illegible]	39	281	121	70
	6	47	12	80
	20	131	65	67
Totals	72	509	208	71
Middle Atlantic				
New York	109	1,195	322	79
New Jersey	40	273	118	70
Pennsylvania	76	534	295	64
Totals	225	2,002	735	74
East North Central				
Ohio	48	461	149	76
Indiana	17	124	60	68
Illinois	61	594	158	79
	36	418	104	80
	24	140	64	69
Totals	186	1,737	535	76
West North Central				
Minnesota	17	158	48	77
Iowa	11	59	35	63
Missouri	25	268	109	71
North Dakota	3	4	8	33
South Dakota	3	16	2	89
Nebraska	9	45	28	62
Kansas	7	48	34	60
Totals	75	598	264	69
South Atlantic				
Delaware	3	20	10	67
Maryland	22	160	85	65
District of Columbia	12	171	50	77
Virginia	19	115	87	57
West Virginia	9	36	14	72
North Carolina	12	118	55	68
South Carolina	7	49	27	64
Georgia	12	121	54	69
Florida	11	96	20	83
Totals	107	886	402	69
East South Central				
Kentucky	10	66	32	67
Tennessee	17	173	59	75
Alabama	6	49	27	64
Mississippi	2	7	11	39
Totals	35	295	129	70
West South Central				
Arkansas	4	28	9	76
Louisiana	11	169	76	69
Oklahoma	7	65	19	77
Texas	27	289	114	72
Totals	49	551	218	72
Mountain				
Montana	2	4	7	36
Colorado	13	92	27	77
Arizona	6	38	29	57
Utah	7	41	35	54
Totals	28	175	98	64
Pacific				
Washington	18	150	71	68
Oregon	7	60	32	65
California	51	682	211	76
Totals	76	892	314	74
Grand Totals	853	7,645	2,903	72

tana, 36%, and the high percentage of those filled in New Hampshire, 100%, are understandable on the basis of the number of internships involved.

Almost half of all hospitals approved for intern training are located in the eight states making up the Middle Atlantic and East North Central regions. They offer a total of 5,009 internships, or about 50% of the total number. About three-fourths of the hospitals offering approved internships lie east of the Mississippi River. They offer a total of 7,438 internships, or 70% of those available. New York with 109, Pennsylvania with 76, and Illinois with 62 hospitals approved for intern training account for 30% of the total number. There are now approved hospitals in all but four states: Idaho, New Mexico, Nevada, and Wyoming.

INTERNSHIP STIPENDS

Table 6 gives an analysis of internship stipends paid in nonfederal hospitals. The figures represent salaries paid to interns in the majority of cases in addition to maintenance. Federal hospitals have been excluded from this table. Stipends paid to interns in these hospitals are established in accordance with government pay tables, with the exception of those paid by the Veterans Administration. Intern stipends in these hospitals are determined locally on the basis of the pay scale prevailing in the community. In hospitals affiliated with medical schools, 36% of intern stipends were at the rate of $75 per month or less, with four hospitals offering no cash stipend; 39% of the hospitals of this classification offered stipends between $76 and $150, and 25% paid salaries of over $150 monthly. For the nonaffiliated group, 7% offered $75 or less per month, 47% paid from $76 to $150, and in 46% the intern monthly stipend was over $150.

Compared with a year ago, internship stipends can be shown to have increased significantly. Comparable figures for the reporting year 1951 gave the following percentages: medical school affiliated hospitals, 56% of stipends in the range $75 per month or less, 35% in the $76-150 range, and 9% reporting stipends of more than $150 per month. In nonaffiliated hospitals percentages for the same salary ranges were 26%, 58%, and 16%. The number of approved hospitals in both groups, affiliated and nonaffiliated, which paid stipends of $200 per month or over rose from 20 as of Sept. 1, 1951, to 104 as of Sept. 1, 1952. The majority of hospitals paying stipends in this range are those of less than 325 bed capacity in the nonaffiliated group.

ADVISORY COMMITTEE ON INTERNSHIPS

Late in 1952, the Advisory Committee on Internships completed an intensive study of the internship and its place in present-day medical education, a study which had been in progress for more than 15 months. The committee included representatives from the medical profession, medical education, the major specialties, and hospital administration, as follows:

S. Howard Armstrong, Chicago.
Granville Bennett, Chicago.
Ulrich Bryner, Salt Lake City.
John Leonard, Hartford, Conn.
John McK. Mitchell, Philadelphia.
John Paine, Buffalo, N. Y.
John Romano, Rochester, N. Y.
Anthony J. J. Rourke, New York.
Robert Willson, Philadelphia.
John Youmans, Nashville.
Victor Johnson, *Chairman*, Rochester, Minn.

Table 6.—*Stipends by Medical School Affiliation and Bed Capacity, 1952-1953*

(Excluding Federal Hospitals)

	None	$25 or Less	$26-50	$51-75	$76-100	$101-125	$126-150	$151-175	$176-200	$200-Over	Not Reported	Number of Hospitals
Non-Affiliated												
Under 176 beds	2	..	1	2	7	32	8	47	8	19	12	138
176-249	..	..	..	7	14	52	21	32	15	36	10	187
250-324	1	..	..	8	19	36	16	29	8	19	12	148
325-399	..	..	1	7	6	18	5	6	1	9	4	57
400-over	..	..	4	4	16	9	9	11	5	8	2	68
Totals	3	..	6	28	62	147	59	125	37	91	40	598
Affiliated (Major and Minor Teaching)												
Under 176 beds	..	..	2	3	1	4	1	6	..	1	1	19
176-249	..	..	..	6	7	9	2	11	1	5	..	41
250-324	1	..	3	2	6	5	1	4	2	4	1	29
325-399	..	3	4	5	4	6	..	3	2	2	..	29
400-over	3	3	26	15	16	11	9	6	3	1	2	95
Totals	4	6	35	31	34	35	13	30	8	13	4	213
Grand Totals	7	6	41	59	96	182	72	155	45	104	44	811

The committee made a report of its findings which was published in The Journal[1] early this year. The report summarized the committee's views on the form and content of the internship and the manner in which it should be conducted. Since its publication, the report has received recognition as an outstanding contribution to this field of medical education and one which will serve to redefine and clarify the principles of intern education for some time to come.

In addition to having drawn up this report, the committee made a thorough study of the Essentials of an Approved Internship and recommended revisions which were officially adopted. The more important changes were those relating to the organization and conduct of an intern educational program, along with those concerning the responsibilities of the medical staff and interns. Changes were also made in the quantitative requirements relating to bed capacity, annual admissions, and autopsy rate. A provision that a hospital which failed for two successive years to appoint at least two-thirds of its requested number of interns be reevaluated for continued approval, was subsequently invalidated. The provisions of these revised Essentials of an Approved Internship are now the basis on which a hospital's teaching potential is evaluated in considering it for admission to, or continuance on the approved list.

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[1] J. A. M. A. **151**: 499-510 (Feb. 7) 1953.

NATIONAL INTERN MATCHING PLAN

The Matching Plan, first introduced in 1950, will again be the official method for the appointment of interns for the coming year. The plan is sponsored by the following organizations: the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, the Catholic Hospital Association, and the Protestant Hospital Association, with liaison representatives to the operating committee from the medical departments of all federal services conducting intern programs. Two student representatives, one from the Student American Medical Association and one representative at large, are also members of the committee.

This year, for the first time, hospitals participating in the Matching Plan have been so designated in the Directory of Approved Internships and Residencies, with code identification of each program in addition to the usual statistical data about the hospital and information on the number and types of internships offered. This section of the directory will be duplicated for the use of students seeking appointments through the plan for the intern year 1954-1955.

The Matching Plan does not purport to distribute interns. A hospital participating in the plan may or may not obtain its requested number of interns, depending upon the number of applicants who signify their desire to accept appointment at that hospital and who are not matched with another hospital higher in their preference rating. The primary purpose of the plan is to give effect to the student's expressed choice of the hospital at which he desires to intern and the hospital's preference of persons applying to it. The plan in no way interferes with the student's free selection of the hospital of his choice. It does have the effect of relieving undue pressure on the student in making that choice. Neither does the plan interfere with proper negotiations between hospital and applicant. It assures the hospital of the appointment of those interns who have applied to it and who have given the hospital high enough preference in their confidential list.

The Matching Plan completed its second successful year of operation last year. A total of 843 hospitals, offering 10,971 internship appointments, participated. There were 6,033 students who signed agreements to apply for appointment through the plan. Of these, 4,873 (80%) were matched with hospitals of their first choice. An additional 580 students (10%) were appointed to hospitals which the applicant had rated second in his confidential list; 291 (5%) received appointments to hospitals they had rated third choice or lower. The remaining 289 students (5%) were not matched with any hospital on their list. The majority of this group had applied to a small number of hospitals, all of which had filled their internships with applicants rated higher by the hospital or the hospitals listed had indicated they would not accept the applicant concerned.

Agreements for participation in the plan for the coming intern year have been forwarded to all approved hospitals, with 835 hospitals indicating that they will participate. Student agreements have also been distributed and are now being returned. It is anticipated that an even higher proportion of students will make their appointments through the plan this year than did last year, when over 90% of the senior class were participants.[2]

TABLE 7.—*Internship Hospitals with Highest Autopsy Rates, 1952-1953*

	FEDERAL	
1.	U. S. Naval Hospital, Pensacola, Fla.	98
2.	Murphy Army Hospital, Waltham, Mass.	97
3.	Brooke Army Medical Center, San Antonio, Texas	94
4.	Fitzsimons Army Hospital, Denver, Colo.	93
5.	Madigan Army Hospital, Tacoma, Wash.	93
6.	William Beaumont Army Hospital, El Paso, Texas	90
7.	Army Medical Center, Washington, D. C.	89
8.	Veterans Admin. Hospital, Houston, Texas	88
9.	Letterman Army Hospital, San Francisco, Calif.	88
10.	Tripler Army Hospital, Honolulu, T. H.	88
11.	Veterans Admin. Hospital, Salt Lake City, Utah	87
12.	U. S. Naval Hospital, Bremerton, Wash.	87
13.	U. S. Naval Hospital, Oakland, Calif.	87
14.	U. S. Naval Hospital, Newport, R. I.	86
15.	U. S. Naval Hospital, Oceanside, Calif.	86
16.	Veterans Admin. Hospital, Seattle, Wash.	85
17.	Valley Forge Army Hospital, Phoenixville, Pa.	83
18.	U. S. Naval Hospital, San Diego, Calif.	82
19.	U. S. Naval Hospital, Bethesda, Md.	82
20.	U. S. Naval Hospital, Chelsea, Mass.	82

	NONFEDERAL	
1.	North Carolina Baptist Hospital, Winston-Salem, N. C.	93
2.	Children's Hospital, Los Angeles, Calif	89
3.	University of Nebraska Hospital,	89
4.	University of Illinois Research and	87
5.	Children's Medical Center, Boston, Mass.	87
6.	University Hospital, Little Rock, Ark.	86
7.	Mary Fletcher Hospital, Burlington, Vt.	83
8.	Mercy Hospital, Des Moines, Iowa	83
9.	Mary Hitchcock Memoria	82
10.	University of Minnesota	82
11.	Evanston Hospital, Evanston, Ill.	78
12.	Strong Memorial-Rochester Municipal Hospitals, Rochester, N. Y.	76
13.	Frankford Hosp	76
14.	Hospital of the	76
15.	Milwaukee Child	76
16.	Peter Bent Brigham Hospital, Boston, Mass.	76
17.	University of California Hospital, San Francisco	74
18.	Albert Einstein Medical Center—Southern Div., Philadelphia	74
19.	Chicago Memorial Hospital, Chicago	73
20.	Parkland Hospital, Dallas, Texas	73

Residencies

Residency programs in 27 specialties and subspecialties and in general practice are currently approved by the Council. In 17 specialties in which approved examining boards have been established, the Council collaborates with the board concerned in granting recognition to a hospital for residency training. In three specialties, ophthalmology, physical medicine, and thoracic surgery, approval is given to a program without specifying the number of years for which the hospital is accredited. Credit for training in these specialties is granted by the board on an individual basis. In all other specialties and subspecialties, the number of years of approval has been designated.

Residency programs in internal medicine are approved through the Residency Review Committee for Internal Medicine, representing the Council, the American Board of Internal Medicine, and the American College of Surgeons. Residencies in the medical subspecialties of allergy, cardiovascular diseases, gastroenterology, and pulmonary diseases are approved in collaboration with the respective subspecialty board of the American Board of Internal Medicine. In surgery, residencies are approved in behalf of the Council, the American Board of Surgery, and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery. Through this committee, uniform standards for training in general surgery, a single list of approved programs, and a uniform evaluation procedure have been established.

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[2] Further details on the operation of the plan can be obtained from the office of the Director, National Intern Matching Plan, Inc., 185 N. Wabash Ave., Chicago, Ill.

In 1950, a special category of residency programs in surgery was developed. These programs are approved by the Council, acting independently, as offering satisfactory training in general surgery in preparation for a surgical specialty. Most of the boards in the surgical specialties now either require or recommend a minimum of one year of such training before beginning training in the specialty itself. Programs of this type have been designated under the category Surgery B in these tables. Surgical residencies leading to certification by the American Board of Surgery are designated as Surgery A programs. Hospitals developing residency programs in general surgery and applicants applying for appointments in surgery should take note of the differentiation between these two types of surgical residencies.

NUMBER OF RESIDENCIES BY SPECIALTIES

This year, there were a total of 4,634 residency programs conducted in 1,131 hospitals approved by the Council. A total of 22,292 residency positions were available in these hospitals, 10,285 being first year appointments. Table 8 includes data on these programs, including the number approved, the number of positions filled and vacant as of Sept. 1, 1952, and the percentages filled, by specialty.

Considering first year appointments only, the largest number offered were in psychiatry, with a total of 1,833 positions; 1,780 first year residencies were available in internal medicine, and 1,500 in general surgery (Type A). Specialties in which the largest percentage of first year positions were filled included gynecology only, 91%, thoracic surgery 89%, obstetrics-gynecology, 84%, psychiatry 84%, surgery (Type A) 84%, and pediatrics, 82%. Considering the total number of residency positions filled, thoracic surgery with 90%, obstetrics-gynecology, 88%, surgery (Type A) 86%, ophthalmology 84%, pediatrics, 84%, and plastic surgery, 82%, showed the largest percentages.

The programs with the lowest percentage of total residencies filled included proctology, 40%, allergy, 46%, physical medicine, 49%, general practice, 51%, surgery (Type B) 56%, and pathology 58%. In these fields, the percentage of positions filled was appreciably below the average for all specialties.

There were 16,867 residency positions filled last year, representing 76% of the total number offered. This compares with 15,851 residencies filled a year ago, representing 77% of those available. It can be anticipated that this figure will remain relatively constant for the next few years unless there is a marked increase in the number of applicants available following discharge from the military services.

As commented on in the Annual Report last year, the percentage of residencies filled in hospitals throughout the United States now closely approximate that for internship positions, 76% as compared to 72%. It is apparent that the staffing of hospitals with interns and residents should be considered as two facets of the same basic problem. An evaluation of the intern shortage except in terms of the total problem can supply at best only a partial answer.

RESIDENCIES BY TYPE OF HOSPITAL CONTROL

Table 9 represents an analysis of residency positions by type of hospital control. Federal hospitals, 109 in number, with 647 separate programs offer 1,393 first year positions, or 14% of the total, and 3,708 residencies for all levels, representing 16% of these appointments. Within the federal services, Veterans Administration hospitals accounted for 80% of the first year residencies and for 75% of the total number of appointments to federal hospitals.

TABLE 8.—*Number of Residencies by Specialty, 1952-1953*

Specialty	Number of Approved Programs	Number of Residencies: First Year Appointments: Filled Sept. 1, 1952	Vacant Sept. 1, 1952	Percentage Filled Sept. 1, 1952	Total Appointments (All Years): Filled Sept. 1, 1952	Vacant Sept. 1, 1952	Percentage Filled Sept. 1, 1952
Allergy	14	8	9	47	11	13	46
Anesthesiology	205	318	109	75	645	208	76
Cardiovascular Disease	28	26	7	79	49	19	72
Contagious Diseases	12	34	16	68	37	17	69
Dermatology-Syphilology	78	58	30	66	178	66	73
Gastroenterology	14	5	4	56	24	8	75
General Practice	112	160	133	55	182	175	51
Internal Medicine	586	1,352	428	76	3,157	1,053	75
Malignant Diseases	13	10	9	53	21	11	64
Neurological Surgery	94	66	38	64	195	81	71
Neurology	81	79	40	66	178	86	62
Obstetrics	77	96	29	77	142	40	78
Gynecology	8	10	1	91	28	2	73
Obstetrics-Gynecology	326	520	96	84	1,365	197	88
Ophthalmology	160	159	42	79	442	83	84
Orthopedic Surgery	257	258	87	75	663	208	76
Otolaryngology	115	90	59	60	237	149	61
Pathology	472	393	237	62	851	616	58
Pediatrics	244	526	113	82	1,031	200	84
Physical Medicine	46	21	23	48	47	48	49
Plastic Surgery	30	19	7	73	55	12	82
Proctology	14	6	6	50	10	15	40
Psychiatry	247	1,533	300	84	1,784	672	73
Pulmonary Diseases	105	148	88	63	218	133	62
Radiology	382	339	179	65	901	375	71
Surgery A	510	1,256	244	84	3,702	616	86
Surgery B	130	118	90	57	163	130	56
Thoracic Surgery	55	54	7	89	121	14	90
Urology	219	115	77	64	430	178	71
Totals	4,634	7,777	2,508	76	16,867	5,425	76

Surgery A—Programs leading to certification by the American Board of Surgery.

Surgery B—Programs approved as offering training in general surgery in preparation for a residency in a surgical specialty.

Other governmental hospitals, excluding federal, offered 4,025 first year appointments, or 39% of these residencies, and 7,553, or 36% of all residency appointments. There were 2,755 residency programs conducted in 727 nongovernmental hospitals throughout the country. These included nonprofit association, church-related, and other community-type institutions. They offered 4,867 first year appointments, or 47% of these residencies, and 11,031 appointments at all levels, representing 48% of the total number of positions available. Federal hospitals were the only group to show a lower percentage of first year appointments filled as compared to that for all levels, 69% for the former and 75% for the latter.

The residency occupancy rate for all types of hospitals was 76% for both first year appointments and for positions at all levels. There were 7,777 first year residents reported on duty last year, with a total of 16,867 residents in all categories. Comparable figures for the year previous showed 6,376 first year residents and 15,851 total number of residents.

NUMBER OF RESIDENCIES BY HOSPITAL BED CAPACITY

A breakdown of the number of first year and total appointments filled and vacant for hospitals of varying bed capacities is given in table 10. Over 62% of first year residencies, 6,377 in number, and 61% of all residencies, a total of 13,654 positions, were offered in hospitals of 400 beds or larger. Hospitals of bed capacities from 250 to 399 beds accounted for 2,221 first year appointments, or 22% of this group and 4,676, or 20% of all residency appointments, while hospitals of bed capacities below 250 accounted for the remainder, 16% of first year and 15% of total appointments available (4% of the total number of appointments were in hospitals of unspecified size).

TABLE 9.—*Number of Residencies by Type of Hospital Control, 1952-1953*

Control	Number of Approved Hospitals	Number of Approved Programs	Number of Residencies: First Year Appointments: Filled Sept. 1, 1952	Vacant Sept. 1, 1952	Percentage Filled Sept. 1, 1952	Total Appointments (All Years): Filled Sept. 1, 1952	Vacant Sept. 1, 1952	Percentage Filled Sept. 1, 1952
Federal								
U. S. Army	16	84	117	41	74	383	75	84
U. S. Navy	7	85	58	5	92	207	72	74
U. S. Public Health Service	8	30	33	4	89	113	12	90
Veterans Administration	72	426	732	366	67	2,021	742	73
Other Federal	6	22	23	14	62	65	6	92
Totals	109	647	963	430	69	2,789	919	75
Governmental (Non-Federal)								
State	143	468	1,969	319	86	2,903	728	80
County	63	243	386	135	74	939	281	77
City	73	437	806	259	76	1,831	549	77
City-County	16	84	122	29	81	254	68	79
Totals	295	1,232	3,283	742	82	5,927	1,626	79
Non-Governmental (all types)	727	2,755	3,531	1,336	73	8,151	2,880	74
Grand Totals	1,131	4,634	7,777	2,508	76	16,867	5,425	76

There appears to be a direct correlation between the size of the hospital and the percentage of residencies filled, particularly for first year appointments, hospitals of bed capacities under 176 having the lowest percentage filled, 66%, and hospitals over 400 beds and over the highest, 80%. Again, for all residencies, hospitals of 176 beds or less filled 69% of their positions while those of 400 beds or over had an occupancy rate of 76%.

RÉSUMÉ

An analysis of internships and residencies available in hospitals approved by the Council has been presented in tabular form together with explanatory comment in this report. There are now 182 hospitals approved by the Council for intern training only, 457 approved for residency training only, and 674 approved for both types of graduate education. A total of 32,840 house staff positions are offered in these hospitals, including 10,548 internship and 22,292 residency appointments.

Last year, 24,512 of these positions were filled, with 7,645 interns and 16,867 residents on duty. It can be estimated on this basis, then, that approximately 15% of the physician population in this country are currently engaged full time in hospital work as house staff members. While the primary objective of these internship and residency programs is educational, their importance from the standpoint of hospital service is evident.

Last year, 28% of all internships and 24% of all residency positions were vacant. While the percentage of vacancies has grown steadily over the past decade, the number of interns and residents serving in approved hospitals has more than doubled. The problem of intern and resident shortages then, is a relative one, depending on whether the demand for interns and residents or the current supply is considered the frame of reference.

TABLE 10.—*Number of Residencies by Bed Capacity, 1952-1953*

Classification	Number of Approved Hospitals	Number of Residencies: First Year Appointments: Filled Sept. 1, 1952	Vacant Sept. 1, 1952	Percentage Filled Sept. 1, 1952	Total Appointments (All Years): Filled Sept. 1, 1952	Vacant Sept. 1, 1952	Percentage Filled Sept. 1, 1952
Under 176 beds	246	438	231	66	940	425	69
176-249	227	677	322	68	1,433	610	70
250-324	189	779	379	67	1,600	763	68
325-399	104	805	258	76	1,710	603	74
400-over	360	5,067	1,310	80	10,663	2,991	78
Not specified	5	11	8	58	521	33	94
Grand Totals	1,131	7,777	2,508	76	16,867	5,425	76

Thus, in 1940, while there were few, if any, internship or residency positions unfilled, there were less than 12,000 interns and residents on duty. Conversely, today approximately 25% of all house staff positions are vacant. The number of interns and residents on duty, however, has risen to over 24,000. These facts are significant in any appraisal of the current situation relative to house staff shortages.

APPROVED INTERNSHIPS

Council on Medical Education and Hospitals of the American Medical Association

535 North Dearborn Street, Chicago 10

Revised to September 1, 1953

HOSPITALS, 856, INTERNSHIPS, 11,006

The following general hospitals, investigated and approved by the Council on Medical Education and Hospitals, are considered in position to furnish acceptable intern training in accordance with standards adopted by the American Medical Association. Three types of internships are approved by the Council—rotating, mixed and straight:

1. A rotating internship is defined as one which provides supervised experience in internal medicine, surgery, pediatrics, obstetrics and their related subspecialties, together with experience in laboratory and radiologic diagnosis.
2. A mixed internship is defined as one which provides supervised experience in two or more, but not in all, of the clinical divisions named.
3. A straight internship is defined as one which provides supervised experience in a single department, although it may include limited opportunity for work in a related subspecialty. Straight internships are now approved in internal medicine, surgery and pediatrics.

Hospitals approved for internships that are used by medical schools for undergraduate clinical clerkships on inpatient services have been identified in the following lists by the symbols **X** and **x**. Hospitals have been identified with symbol **X** when a medical school has indicated that the hospital is a major unit in the school's teaching program. Hospitals have been identified with the symbol **x** when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program. Certain internships in hospitals designated as teaching hospitals may not provide for assignments to teaching services. Other internships may provide for only a portion of the internship period being spent on teaching services. Prospective interns desiring specific information concerning internship assignments to teaching services in a hospital are advised to communicate with the dean of the medical school with which the hospital is affiliated. Medical school affiliations are indicated by footnotes 10 to 86 placed immediately after the symbol X or x. The list of medical schools appears on page 303. The plus (+) sign indicates additional approval for residencies in specialties, as shown in the Council's list of Approved Residencies and Fellowships. The beginning stipends for Federal hospitals have not been listed; they are established in accordance with government pay tables. When applying for internships in Air Force, Army, Navy or Public Health Service hospitals, applications should be directed to the medical departments of the Air Force, Army, Navy or the United States Public Health Service and not to the individual hospitals. Although applications are made to the service rather than to the individual hospitals, all of the services ask students to list three hospitals in order of preference. Every possible effort is made to place successful candidates in accordance with their desires. Because of the needs of the service it should be understood that students may, in some instances, be assigned to other hospitals than those for which they have indicated a preference.

Hospitals listed below (pages 282 to 302) make first year internship appointments through the National Intern Matching Program, Inc. (see also page 302). The number and type of internships as listed represent appointments for the intern year 1954-1955.

FEDERAL

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
UNITED STATES ARMY—Hospitals, 11; Internships, 150										
Army and Navy General Hospital +$^{1-5}$ Reserve Ave. and Cottage St., Hot Springs, Ark.	Fed	400	3,267	Req	71	12	(104)	...		
Letterman Army Hospital +$^{1-5}$ Presidio, San Francisco, Calif.	Fed	1,924	12,727	None	88	12	No	...		
Fitzsimons Army Hospital +$^{1-4-5}$ Denver 8, Colo.	Fed	2,200	9,779	Req	93	12	No	...		
Army Medical Center +$^{1-4-5}$-x19-20-37 6900 Georgia Ave., N.W., Washington 12, D. C.	Fed	1,700	14,379	Req	89	12	No	...		
Murphy Army Hospital +$^{1-5}$ 424 Trapelo Rd., Waltham 54, Mass.	Fed	545	3,215	None	98	12	(160)	...	150 Rotating General Office of the Surgeon General, Department of the Army, Washington 25, D. C. Attn. Chief Personnel Division	00411
Percy Jones Army Hospital +$^{1-4-5}$ 74 N. Washington Ave., Battle Creek, Mich.	Fed	1,250	5,160	Req	80	12	No	...		
Valley Forge Army Hospital +$^{1-4-5}$ Phoenixville, Pa.	Fed	1,650	5,819	Req	83	12	(245)	...		
William Beaumont Army Hospital +^{5} El Paso, Texas	Fed	1,200	12,643	None	90	12	No	...		
Brooke Army Medical Center +$^{4-5}$ Fort Sam Houston, San Antonio, Texas	Fed	2,100	18,466	Req	94	12	No	...		
Madigan Army Hospital +$^{1-4-5}$ Tacoma 9, Wash.	Fed	1,401	8,048	Req	93	12	No	...		
Tripler Army Hospital +^{5} Moanalua-N. King St. (Oahu Island), Honolulu, T. H.	Fed	1,603	18,279	None	88	12	No	...		
UNITED STATES AIR FORCE—Hospitals, 11; Internships, 60										
The 60 Air Force internships are divided among the Army hospitals listed above.									60 Rotating General Directorate of Staffing and Education, Office of the Surgeon General, Headquarters, U. S. Air Force, Washington 25, D. C.	00311
UNITED STATES NAVY—Hospitals, 14; Internships, 176										
U. S. Naval Hospital +$^{1-4}$ 8750 Mountain Blvd., Oakland 14, Calif.	Fed	2,000	19,141	Req	87	12	No	...		
U. S. Naval Hospital $^{1-4}$ Camp Pendleton, Oceanside, Calif.	Fed	1,331	13,691	Req	86	12	No	...		
U. S. Naval Hospital +$^{1-4}$ San Diego 34, Calif.	Fed	2,800	32,242	Req	82	12	No	...	176 Rotating General Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C.	00211
U. S. Naval Hospital ^{1} Jacksonville, Fla.	Fed	600	8,074	Req	73	12	No	...		
U. S. Naval Hospital ^{1} Pensacola, Fla.	Fed	400	6,451	Req	98	12	No	...		
U. S. Naval Hospital +$^{1-4}$ Training Center, Great Lakes, Ill.	Fed	1,350	14,270	Req	72	12	No	...		

Abbreviations and other references will be found on pages 303 and 304.

FEDERAL—Continued

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
UNITED STATES NAVY—Continued										
U. S. Naval Hospital +^{1}-x19 Rockville Pike, Bethesda 14, Md.	Fed	1,225	14,656	Req	82	12	No	...	176 Rotating General Bureau of Medicine and Surgery, *Navy Department,* Washington 25, D. C.	00211
U. S. Naval Hospital +$^{1-4}$-x37 1, Broadway, Chelsea 50, Mass.	Fed	1,041	9,241	Req	82	12	No	...		
U. S. Naval Hospital +$^{1-4}$ Linden Blvd., St. Albans 25, N. Y.	Fed	2,778	11,425	Req	81	12	No	...		
U. S. Naval Hospital +^{4}-x69 *16th and Pattison Ave., Philadelphia 45, Pa.*	Fed	1,600	16,026	Req	22	12	No	...		
U. S. Naval Hospital ^{1} 3rd and Cypress Sts., Newport, R. I.	Fed	575	7,420	Req	86	12	No	...		
U. S. Naval Hospital ^{1} Naval Base, Charleston, S. C.	Fed	550	5,994	Req	66	12	No	...		
U. S. Naval Hospital +$^{1-4}$ Portsmouth, Va.	Fed	2,150	24,653	Req	55	12	No	...		
U. S. Naval Hospital ^{1} Naval Base, Bremerton, Wash.	Fed	500	5,308	Req	87	12	No	...		
UNITED STATES PUBLIC HEALTH SERVICE—Hospitals, 5; Internships, 106										
U. S. Public Health Service Hospital +$^{1-3-4}$ 15th Ave. and Lake St., San Francisco 18, Calif.	Fed	426	5,436	Req	79	12	(113)	...	106 Rotating General Public Health Service Hospitals, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D. C. Attn. Chairman Committee on Residents and Interns	00111
U. S. Public Health Service Hospital +$^{1-3-4}$ 210 State Street, New Orleans 18, La.	Fed	436	5,688	Req	79	12	(152)	...		
U. S. Public Health Service Hospital +$^{1-4}$ Wyman Park Dr. and 31st St., Baltimore 11	Fed	400	7,357	Req	77	12	(158)	...		
U. S. Public Health Service Hospital +$^{1-4}$ Bay St. and Vanderbilt Ave., Staten Island 4, N. Y.	Fed	983	10,761	Req	66	12	(220)	...		
U. S. Public Health Service Hospital +$^{1-4}$-x83 14th and Judkins, Seattle 14, Wash.	Fed	431	5,292	Req	69	12	(266)	...		
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—Hospitals, 2; Internships, 30										
Freedmen's Hospital +$^{1-3-4}$-X21 *6th and Bryant Sts., N.W., Washington 25*	Fed	533	10,398	None	41	12	No	...	18 Rotating General	79811
St. Elizabeth's Hospital +$^{1-3-4}$-X20 2600 Nichols Ave., S.E., Washington 20	Fed	403	2,483	Req	61	12	(124)	...	12 Rotating General	80411
VETERANS ADMINISTRATION—Hospitals, 13; Internships, 221										
Veterans Administration Hospital +$^{1-3}$-x11 300 E. Roosevelt Rd., Little Rock, Ark.	Fed	427	4,639	Req	73	12	(103)	...	3 Rotating General 3 Straight Medicine 3 Straight Surgery	01911 01932 01933
Veterans Administration Hospital +$^{1-3}$-X13 5700 E. 7th St., Long Beach 4, Calif.	Fed	1,600	14,202	Req	82	12	(108)	...	30 Rotating General 5 Straight Medicine	02811 02832
Veterans Administration Hospital +$^{1-3}$-X13 Wilshire and Sawtelle Blvds., Los Angeles 25, Calif.	Fed	1,366	13,191	None	77	12-24	(109)	...	40 Rotating General	03911
Veterans Administration Hospital +^{1}-X22 5998 Peachtree Rd., Atlanta, Ga.	Fed	300	5,797	....	68	12	(131)	...	10 Straight Medicine	11732
Veterans Administration Hospital +$^{1-3}$-X41 Southfield Road and Outer Dr., Dearborn, Mich.	Fed	1,118	8,293	Req	54	24	(170)	...	20 Rotating General	86511
Veterans Administration Hospital +^{1}-X63 Will Rogers Field, Oklahoma City, Okla.	Fed	220	8,038	None	78	12	(239)	...	7 Rotating General	58911
Veterans Administration Hospital +^{1}-X75 90 White Bridge Rd., Nashville 5, Tenn.	Fed	600	6,592	None	76	12	(253)	...	4 Mix. Med. Surg. 4 Straight Medicine 4 Straight Surgery	70324 70332 70333
Veterans Administration Hospital +$^{1-3}$-X76 4500 Lancaster Rd., Dallas 2, Texas	Fed	347	3,285	None	69	12	No	...	10 Straight Medicine	88732
Veterans Administration Hospital +$^{1-3-4}$-X78 2002 Holcombe Blvd., Houston 31, Texas	Fed	808	6,816	Req	88	12	(256)	...	40 Rotating General	71911
Veterans Administration Hospital +^{1}-X76 McKinney, Texas	Fed	593	7,321	*None*	80	12	(255)	...	8 Straight Medicine 4 Straight Surgery	72032 72033
Veterans Administration Hospital +-X79 12th Ave. and "E" St., Salt Lake City 3, Utah	Fed	194	2,694	None	87	12	(259)	...	8 Rotating General 2 Straight Medicine	73311 73332
Veterans Administration Hospital +^{1}-x82 Broad Rock Rd. and South Blvd., Richmond 19, Va.	Fed	1,017	6,874	Req	58	12	(263)	...	8 Straight Medicine	74532
Veterans Administration Hospital +$^{1-3}$-X83 4435 Beacon Ave., Seattle 8, Wash.	Fed	264	3,816	Req	85	12	No	...	8 Straight Medicine	88032

NONFEDERAL

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
ALABAMA—Hospitals, 6; Internships, 78										
Birmingham Baptist Hospital +$^{1-3}$ 708 Tuscaloosa Ave., and 2236 Highland Ave., Birmingham	Church	310	9,389	None	38	12	(100)	200	12 Rotating General	90311
Carraway Methodist Hospital +$^{1-3}$ 2506 16th Ave. N., Birmingham 4	Church	233	9,302	Req	37	12	No	100	9 Rotating General	00611
Jefferson-Hillman Hospital +$^{1-3-4}$-X10 619 South 19th St., Birmingham	State	600	23,695	Req	41	12	No	25	36 Rotating General	00711
St. Vincent's Hospital $^{1-3}$ 2701 Ninth Ct. S., Birmingham	NPAssn	200	7,188	Req	38	12	No	200	6 Rotating General	85111
Lloyd Noland Hospital +$^{1-3}$ Fairfield	NPAssn	271	8,110	Req	46	12	No	125	12 Rotating General	00811
Holy Name of Jesus Hospital $^{1-3}$ Moragne Park, Gadsden	Church	145	6,251	Req	48	12	No	75	3 Rotating General	00911
ARIZONA—Hospitals, 5; Internships, 58										
Maricopa County General Hospital +^{1} 3435 West Apache Rd., Phoenix	County	346	7,634	Req	21	12	No	200	12 Rotating General	89811
Memorial Hospital +$^{1-3}$ 1200 S. Fifth Ave., Phoenix	NPAssn	189	9,157	None	30	12	(101)	200	10 Rotating General	01311
St. Joseph's Hospital +^{1} W. Thomas Rd., Phoenix	Church	192	10,493	Req	46	12	(101)	175	15 Rotating General	01211
St. Mary's Hospital and Sanatorium +$^{1-3}$ St. Mary's Rd., Tucson	Church	309	12,303	Req	40	12	(102)	150	9 Rotating General	01411
Tucson Medical Center +$^{1-3}$ E. Grant Rd. and Beverly Blvd., Tucson	NPAssn	236	7,443	Req	62	12	(102)	100	12 Rotating General	01511

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
ARKANSAS—Hospitals, 3; Internships, 36										
Arkansas Baptist Hospital +1-3 1700 W. 13th St., Little Rock	Church	294	12,775	None	21	12	No	200	12 Rotating General	01611
St. Vincent 1000 Hi	Church	210	9,289	Req	26	12	No	200	12 Rotating General	01711
University 11th and McAlmont Sts., Little Rock	State	202	7,256	Req	86	12	No	120	12 Rotating General	01811
CALIFORNIA—Hospitals, 45; Internships, 772										
General Hospital of Riverside County +1-3 9851 Magnolia Ave., Arlington	County	321	3,929	Req	49	12	No	160	8 Rotating General	85011
Herrick Memorial Hospital +1-3-4 2001 Dwight Way, Berkeley 4	NPAssn	208	8,715	Req	67	12	No	55	6 Rotating General	02011
San Joaquin General Hospital +1-3 French Camp	County	720	9,148	Req	58	12	No	150	14 Rotating General	02111
General Hospital of Fresno County +1-3-4 4461 Ventura Ave., Fresno	County	639	10,285	Req	36	12	No	142	17 Rotating General	02211
Glendale Sanitarium and Hospital 1 1509 E. Wilson Ave., Glendale 6	Church	225	10,032	Req	47	12	No	152	12 Rotating General	02311
Loma Linda Sanitarium and Hospital +1-3-x12 Loma Linda	Church	166	5,543	Req	57	12	No	135	8 Rotating General	02411
St. Mary's Long Beach Hospital 3 509 E. 10th St., Long Beach 13	Church	250	13,202	None	30	12	(105)	125	6 Rotating General	02611
Seaside Memorial Hospital +1-3 1401 Chestnut Ave., Long Beach 13	NPAssn	370	15,100	Req	28	12	(108)	50	12 Rotating General	02711
California Hospital +1-3 1414 S. Hope St., Los Angeles 15	Church	305	14,489	Req	44	12	(115)	125	13 Rotating General	02911
Cedars of Lebanon Hospital +1-3 4833 Fountain Ave., Los Angeles 29	NPAssn	310	12,397	Req	59	12	No	80	14 Rotating General	03011
Children's Hospital +1-X14-16 4614 Sunset Blvd., Los Angeles 27	NPAssn	202	7,810	Req	89	12	No	40	4 Straight Ped.	03134
Hospital of the Good Samaritan +1-3 1212 Shatto St., Los Angeles 17	Church	400	13,329	Req	39	12	(107)	90	12 Rotating General	03211
Los Angeles County Hospital +1-4-X12-14 1200 N. State St., Los Angeles 33	County	3,152	74,759	Req	30	12	No	75	130 Rotating General	03311
Methodist Hospital of Southern California +1-3 2826 S. Hope St., Los Angeles 7	Church	206	9,871	Req	31	12	No	125	12 Rotating General	03411
Presbyterian Hospital-Olmstead Memorial +1-3 1322 N. Vermont Ave., Los Angeles 27	Church	300	11,894	Req	41	12	(107)	...	14 Rotating General	03511
Queen of Angels Hospital +1-3 2301 Bellevue Ave., Los Angeles 26	Church	502	19,551	Req	60	12	No	75	20 Rotating General	03611
St. Vincent's Hospital +3 2131 W. Third St., Los Angeles 5	Church	230	9,972	None	35	12	(107)	90	6 Rotating General	03711
Santa Fe Coast Lines Hospital + 610 S. St. Louis St., Los Angeles 23	NPAssn	196	4,759	Req	54	12	(107)	100	9 Rotating General	03811
White Memorial Hospital +1-3-X12 312 N. Boyle Ave., Los Angeles 33	Church	387	9,262	Req	51	12	(108)	127	16 Rotating General	04011
Highland-Alameda County Hospital +1-3-4 2701 14th Ave., Oakland 6	County	429	12,501	Req	40	12	(110)	75	32 Rotating General	04111
Kaiser Foundation Hospital +1-3 280 W. MacArthur Blvd., W., Oakland	NPAssn	315	13,214	Req	73	12	(116)	75	36 Rotating General	04211
Orange County General Hospital 1-3-4 12071 Santa Ana Blvd., Orange	County	583	4,184	Req	36	12	No	173	14 Rotating General	04311
Collis P. and Howard Huntington Memorial Hospital +1-3 100 Congress St., Pasadena 5	NPAssn	293	13,299	Req	58	12	No	187.50	9 Rotating General	04411
St. Luke Hospital 1-3 2632 E. Washingt	Church	165	9,488	Req	29	12	...	75	3 Rotating General	04511
Sacramento County Sacramento 17	County	470	11,941	Req	51	12	No	120	22 Rotating General	04611
San Bernardino County Charity Hospital +-x12 780 E. Gilbert St., San Bernardino	County	412	5,633	Req	56	12	No	130	13 Rotating General	04711
Mercy Hospital +1-3 Hillcrest Dr., San Diego 3	Church	348	17,025	Req	41	12	...	150	10 Rotating General	04811
San Diego County General Hospital +1-3-4 North Front St., San Diego 3	County	817	8,188	Req	40	12	No	125	15 Rotating General	04911
Children's Hospital +1-3 3700 California St., San Francisco 18	NPAssn	222	7,244	Req	56	12	No	75	9 Rotating General	05011
Franklin Hospital +1-3 14th and Noe Sts., San Francisco 14	NPAssn	250	8,222	None	42	12	No	100	16 Rotating General	05111
French Hospital +1-3 4131 Geary Blvd., San Francisco 18	NPAssn	225	6,492	Req	32	12	No	75	10 Rotating General	05211
Mary's Help Hospital +1-3 145 Guerrero St., San Francisco 3	Church	186	7,273	Req	36	12	No	75	6 Rotating General	05311
Mount Zion Hospital +1-3-4 1600 Divisadero, San Francisco 15	NPAssn	289	9,448	Req	67	12	No	75	13 Rotating General	05411
St. Joseph's Hospital +1-3 Buena Vista Ave., San Francisco 17	Church	200	7,736	Req	37	12	No	75	6 Rotating General	05511
St. Luke's Hospital +1-3 1580 Valencia St., San Francisco 10	Church	229	8,227	Req	38	12	No	100	10 Rotating General	05611
St. Mary's Hospital +1-3 2200 Hayes St., San Francisco 17	Church	371	11,830	Req	43	12	No	100	15 Rotating General	05711
San Francisco Hospital +1-X14-16 22d St. and Potrero Ave., San Francisco 10	CyCo	1,203	20,781	Req	31	12	No	110		
Stanford University Service Office of the Dean Stanford University School of Medicine 2398 Sacramento St., San Francisco 15									32 Rotating General	05911
University of California Service Dr. Henry D. Brainerd San Francisco Hospital									32 Rotating General	05811
Southern Pacific General Hospital +1-3 1400 Fell St., San Francisco 17	NPAssn	474	7,818	Req	61	12	(112)	100	24 Rotating General	06011
Stanford University Hospitals +1-3-X15 Clay and Webster Sts., San Francisco 15 Office of the Dean Stanford University School of Medicine 2398 Sacramento St., San Francisco 15	NPAssn	355	11,225	Req	55	12	No	25	7 Straight Medicine 8 Straight Surgery 1 Straight Ped.	06132 06133 06134
University of California Hospital +1-3-X16 Parnassus and Third Aves., San Francisco 22 Dr. John B. Lagen, Associate Dean School of Medicine, University of California San Francisco 22	State	286	8,299	Req	74	12	(111)	25	8 Rotating General 2 Mix. Med. Ob. Gyn. 2 Mix. Med. Surg. 2 Mix. Surg. Ped. 2 Mix. Ped. Ob. Gyn. 4 Straight Medicine 4 Straight Surgery 2 Straight Ped.	06211 06209 06224 06207 06208 06232 06233 06234

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
CALIFORNIA—Continued										
Santa Clara County Hospital $^{+1}$ Los Gatos Rd., San Jose 14	County	457	5,964	Req	35	12	No	135	14 Rotating General	06311
Santa Barbara Cottage Hospital $^{+1-3}$ 320 W. Pueblo St., Santa Barbara	NPAssn	220	6,756	Req	58	12	(114)	75	10 Rotating General	06411
St. John's Hospital $^{+}$ 1328 Twenty-Second St., Santa Monica	Church	193	10,508	Req	66	12	No	125	6 Rotating General	06511
Santa Monica Hospital $^{+1-3}$ 1250 16th St., Santa Monica	Church	178	10,546	Req	35	12	(106)	125	8 Rotating General	06611
Harbor General Hospital $^{+1-3}$-X13 1124 W. Carson St., Torrance	County	775	9,279	Req	31	12	No	75	36 Rotating General	06711
COLORADO—Hospitals, 11; Internships, 120										
Glockner-Penrose Hospital $^{+1-3}$ 2200 N. Tejon St., Colorado Springs	Church	215	5,078	Req	49	12	No	50	3 Rotating General	06811
General Rose Memorial Hospital $^{+1-3}$ 1050 Clermont St., Denver 20	NPAssn	250	11,472	None	48	12	(120)	75	8 Rotating General	06911
Porter Sanitarium and Hospital ^{1} 2525 S. Downing St., Denver 10	Church	210	7,380	Req	42	12	(117)	162	7 Rotating General	07111
Presbyterian Hospital $^{+1-3}$-x17 19th and Gilpin, Denver 6	Church	200	8,581	Req	57	12	(118)	75	10 Rotating General	07211
St. Anthony Hospital $^{+1-3}$ W. 16th and Quitman Sts., Denver 4	Church	235	10,130	Req	36	12	(120)	150	8 Rotating General	07311
St. Joseph's Hospital $^{+1}$ 1818 Humboldt St., Denver 6	Church	375	11,595	None	50	12	No	75	12 Rotating General	07411
St. Luke's Hospital $^{+1-3}$ 601 E. 19th Ave., Denver 3	Church	284	12,284	Req	50	12	(118)	75	14 Rotating General	07511
University of Colorado Medical Center Colorado General Hospital $^{+1}$-X17 4200 E. 9th Ave., Denver 20	State	352	6,215	None	71	12	No	50	16 Rotating General	07611
Denver General Hospital $^{+1}$-X17 W. 6th Ave. and Sherokee St., Denver 4	CyCo	432	7,415	None	65	12	(119)	50	16 Rotating General 16 Community Rot.	07711 07710
Weld County General Hospital $^{1-3}$ 1801 16th St., Greeley	County	220	4,717	Req	51	12	(120)	100	6 Rotating General	85311
Corwin Hospital $^{+1-3}$ Lake and Minnequa Aves., Pueblo	NPAssn	206	5,947	Req	40	12	No	100	4 Mix. Med. Ob. Gyn. Surg.	07822
CONNECTICUT—Hospitals, 20; Internships, 182										
Bridgeport Hospital $^{+1-3}$ 267 Grant St., Bridgeport 8	NPAssn	382	13,005	Req	35	12	No	100	10 Rotating General	07911
St. Vincent's Hospital $^{+1-3}$ 2820 Main St., Bridgeport 6	Church	370	14,531	Req	27	12	No	100	12 Rotating General	08011
Danbury Hospital ^{3} 95 Locust Ave., Danbury	NPAssn	167	5,498	None	56	12	No	200	5 Rotating General	08111
Greenwich Hospital $^{1-3}$ Lake Ave. and William St., Greenwich	NPAssn	193	6,064	Req	65	12	No	100	3 Rot. (Med.-Major) 2 Rot. (Surg.-Major)	08212 08213
Hartford Hospital $^{+1-3-4}$ 80 Seymour St., Hartford 15	NPAssn	810	27,033	Req	61	24	No	...	18 Rotating General	08311
McCook Memorial Hospital $^{+1-3}$ 2 Holcomb St., Hartford 5	City	273	4,092	Req	41	12	No	110	6 Rotating General	08411
Mount Sinai Hospital ^{3} 500 Blue Hills Ave., Hartford 12	NPAssn	115	5,065	Req	25	12	No	200	4 Rotating General	85411
St. Francis Hospital $^{+1-3-4}$ 114 Woodland St., Hartford 5	Church	570	19,886	Req	34	12	(122)	75	13 Rotating General	08511
Manchester Memorial Hospital $^{1-3}$ 71 Haynes St., Manchester	NPAssn	160	5,979	Req	38	12	(121)	275	4 Rotating General	85511
Meriden Hospital $^{1-3}$ 181 Cook Ave., Meriden	NPAssn	217	7,203	None	39	12	No	100	2 Rotating General	08611
Middlesex Hospital $^{+1-3}$ 28 Crescent St., Middletown	NPAssn	150	7,090	None	46	12	No	200	4 Rotating General	08711
New Britain General Hospital $^{+1-3}$ 92 Grand St., New Britain	NPAssn	260	9,086	Req	54	12	No	105	9 Rotating General	08811
Grace-New Haven Community Hospital $^{+1-3-4}$-X18 789 Howard Ave., New Haven 4	NPAssn	671	22,055	Req	47	12	(123)	25	8 Rotating General 12 Straight Medicine 12 Straight Surgery 7 Straight Ped.	08911 08932 08933 08934
Hospital of St. Raphael $^{+3}$ 1442 Chapel St., New Haven 11	Church	370	12,826	Req	30	12	No	75	12 Rotating General	09011
Lawrence and Memorial Associated Hospital $^{+1-3}$ 365 Montauk Ave., New London	NPAssn	233	8,414	None	25	12	No	200	4 Rotating General	09211
Norwalk Hospital $^{+1-3}$ 24 Stevens St., Norwalk	NPAssn	245	9,164	Req	42	12	No	100	8 Rotating General	09311
William W. Backus Hospital ^{3} 326 Washington St., Norwich	NPAssn	146	6,400	None	24	12	No	150	3 Rotating General	09411
Stamford Hospital $^{+1-3}$ 190 W. Broad St., Stamford	NPAssn	232	8,999	Req	52	12	No	150	10 Rotating General	09511
St. Mary's Hospital $^{+1-3-4}$ 56 Franklin St., Waterbury 6	Church	332	13,506	Req	29	12	No	100	7 Rotating General	09611
Waterbury Hospital $^{+1-4}$ 64 Robbins St., Waterbury 8	NPAssn	337	11,807	Req	56	12	No	100	7 Rotating General	09711
DELAWARE—Hospitals, 3; Internships, 28										
Delaware Hospital $^{+1-3-4}$ 501 W. 14th St., Wilmington 1	NPAssn	377	12,442	None	70	12	No	150	14 Rotating General	09811
Memorial Hospital $^{+1-3}$-x65 1501 Van Buren St., Wilmington 6	NPAssn	228	6,326	Req	54	12	No	150	8 Rotating General	09911
Wilmington General Hospital $^{+1-3}$ Chestnut at Broom St., Wilmington 5	NPAssn	187	6,511	Req	39	12	No	150	6 Rotating General	10011
DISTRICT OF COLUMBIA—Hospitals, 9; Internships, 148										
Central Dispensary and Emergency Hosp. $^{+1-4}$-x20 1711 New York Ave., N. W., Washington 6	NPAssn	300	8,314	Req	53	12	(125)	200	13 Rotating General	79611
Doctors Hospital $^{+1-3}$ 1815 Eye St., N. W., Washington 6	Corp	237	10,486	None	65	12	No	200	6 Rotating General	79711
Gallinger Municipal Hospital $^{+1-3-4}$-X19-20-x21 19th and Massachusetts Ave., S.E., Washington 3	City	1,416	19,004	Req	37	12	No	75	50 Rotating General	79911
Garfield Memorial Hospital $^{+1-3}$ 10th and Florida Ave., N. W., Washington 1	NPAssn	300	9,575	Req	64	12	No	150	12 Rotating General	80011
Georgetown University Hospital $^{+1-3}$-X19 3800 Reservoir Rd., N. W., Washington 7	Church	367	11,832	Req	62	62	(261)	50	12 Straight Medicine	80132
George Washington University Hospital $^{+1-3}$-X19-20 901 23d St., N.W., Washington 7	NPAssn	410	14,217	Req	65	12	(124)	105	13 Rot. (Med.-Major) 11 Rot. (Surg.-Major) 2 Rot. (Path.-Major)	80212 80213 80286

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
DISTRICT OF COLUMBIA—Continued										
Providence Hospital +$^{1-3-4}$ 2d and D Sts., S. E., Washington 3	Church	275	12,470	Req	54	12	No	175	12 Rotating General	80311
Sibley Memorial Hospital +$^{1-3}$ 1150	Church	253	11,483	Req	48	12	No	100	9 Rotating General	80511
Washing $^{1-3}$ 7600	Church	226	6,926	Req	42	12	(155)	135	8 Rotating General	25411
FLORIDA—Hospitals, 9; Internships, 108										
Duval Medical Center +$^{1-3}$ 2000 Jefferson St., Jacksonville 8	County	330	7,012	Req	46	12	No	125	14 Rotating General	10111
St. Luke's Hospital +^{1} 9th St. and Boulevard, Jacksonville 8	NPAssn	210	9,970	Req	22	12	No	175	4 Rotating General	10211
St. Vincent's Hospital +$^{1-3}$ Barrs and St. John's Ave., Jacksonville 4	Church	236	13,003	Req	38	12	No	125	9 Rotating General	10311
Jackson Memorial Hospital +^{1} 1000 N. W. 17th St., Miami 36	County	577	19,087	Req	44	12	(275)	50	42 Rotating General	10411
Mount Sinai Hospital +$^{1-3}$ 4300 Alton Rd., Miami Beach 40	NPAssn	258	7,935	Req	34	12	(128)	No	10 Rotating General	10511
St. Francis Hospital +$^{1-3}$ 63d St. and Allison Rd., Miami Beach 41	Church	200	5,701	Req	34	12	No	100	5 Rotating General	10611
Orange Memorial Hospital +$^{1-3}$ 1416 S. Kuhl Ave., Orlando	NPAssn	296	11,653	Req	44	12	No	100	12 Rotating General	10711
Mound Park Hospital + 6th St. and 7th Ave., S., St. Petersburg 5	NPAssn	244	3,800	Req	43	12	(127)	175	8 Rotating General	91111
St. Mary's Hospital 900 49th St., West Palm Beach	Church	150	4,551	None	..	12	...	...	4 Rotating General	91411
GEORGIA—Hospitals, 11; Internships, 175										
Athens General Hospital 797 Cobb St., Athens	County	104	4,092	Req	16	12	(129)	150	4 Rotating General	85611
St. Mary's Hospital $^{1-3}$ 360 N. Milledge Ave., Athens	Church	100	4,012	Req	28	12	No	150	3 Rotating General	11011
Crawford W. Long Memorial Hospital +$^{1-3}$-x22 35 Linden Ave., N. E., Atlanta 3	Church	480	22,476	Req	38	12	(130)	75	18 Rotating General	11111
Georgia Baptist Hospital +$^{1-3}$ 300 Boulevard, N. E., Atlanta	Church	389	12,993	Req	33	12	No	230	18 Rotating General	11211
Grady Memorial Hospital +$^{1-2-4}$-X22 36 Butler St., S. E., Atlanta 3	County	610	16,045	Req	66	12	No	10	24 Straight Medicine 16 Straight Surgery 8 Straight Ped. 12 Rotating General ^{6}	11332 11333 11334 11381
Piedmont Hospital +^{1}-x22 551 Capitol Ave., Atlanta	NPAssn	150	6,516	None	53	12	(130)	150	8 Rotating General	11411
St. Joseph's Infirmary +$^{1-3}$ 272 Courtland St., N. E., Atlanta 3	NPAssn	150	8,236	Req	51	12	(130)	150	6 Rotating General	11511
University Hospital +$^{1-3}$-X23 University Pl., Augusta	City	479	15,963	Req	25	12	(132)	150	24 Rotating General	11611
Columbus City Hospital +^{1} 19th St. and 8th Ave., Columbus	City	223	10,082	Req	30	12	No	200	10 Rotating General	11811
Emory University Hospital +$^{1-3}$-X22 Emory University	NPAssn	281	11,010	Req	53	12	No	145	6 Straight Medicine 6 Straight Surgery	11932 11933
Macon Hospital +^{1} 840 Pine St., Macon	CyCo	282	14,315	Req	32	12	(133)	200	12 Rot. (Gen. Prac.-Maj.)	12081
ILLINOIS—Hospitals, 59; Internships, 781										
MacNeal Memorial Hospital +$^{1-3}$ 3249 S. Oak Park Ave., Berwyn	NPAssn	165	8,850	Req	35	12	No	100	10 Rotating General	12111
Alexian Brothers Hospital +^{3} 1200 W. Belden Ave., Chicago 14	Church	250	5,998	Req	47	12	(138)	75	7 Rotating General	12211
American Hospital +$^{1-3}$ 850 W. Irving Park Rd., Chicago 13	NPAssn	152	5,426	None	31	12	No	25	5 Rotating General	12311
Augustana Hospital +$^{1-3}$ 411 W. Dickens Ave., Chicago 14	Church	320	8,815	Req	54	12	No	100	10 Rotating General	12411
Chicago Memorial Hospital +$^{1-3}$-x28 660 E. Groveland Park, Chicago 16	NPAssn	100	2,410	None	73	12	(134)	150	5 Rotating General	12511
Columbus Hospital +^{3}-x25 2520 N. Lakeview Ave., Chicago 14	Church	450	9,723	Req	54	12	(137)	75	20 Rotating General	12611
Cook County Hospital +$^{1-3-4}$-X24-25-26-28 1825 W. Harrison St., Chicago 12	County	3,300	67,670	Req	21	24	No	25	123 Rotating General	12711
Edgewater Hospital ^{3} 5700 N. Ashland, Chicago 26	NPAssn	156	6,780	Req	46	12	No	100	15 Rotating General	12811
Englewood Hospital +^{3} 6001 S. Green St., Chicago 21	NPAssn	156	6,452	None	40	12	No	150	5 Rotating General	12911
Evangelical Hospital $^{1-3}$ 5421 S. Morgan St., Chicago 9	Church	195	8,030	None	22	12	No	100	7 Rotating General	13011
Garfield Park Community Hospital ^{1} 3813-25 W. Washington Blvd., Chicago 24	NPAssn	150	6,053	None	36	12	(140)	175	7 Rotating General	13111
Grant Hospital +$^{1-3}$-X28 551 Grant Pl., Chicago 14	NPAssn	242	8,378	Req	65	12	(135)	100	9 Rotating General	13211
Henrotin Hospital +$^{1-3}$ 939 N. La Salle, Chicago 10	NPAssn	100	3,351	Req	59	12	No	125	4 Rotating General	13311
Holy Cross Hospital ^{3} 2700 W. 69th St., Chicago 29	Church	143	5,877	Req	56	12	No	100	6 Rotating General	13411
Hospital of St. Anthony de Padua +^{1} 2875 W. 19th St., Chicago 23	Church	217	7,801	None	39	12	No	200	9 Rotating General	13511
Illinois Central Hospital +$^{1-3}$-X28 5800 Stony Island Ave., Chicago 37	NPAssn	270	7,500	Req	48	12	(139)	155	12 Rotating General	13611
Illinois Masonic Hospital +$^{1-3}$ 836 Wellington Avenue, Chicago 14	NPAssn	350	13,073	Req	42	12	No	75	12 Rotating General	13711
Jackson Park Hospital $^{1-3}$ 7531 Stony Island Ave., Chicago 49	Corp	146	4,974	None	30	12	No	150	6 Rotating General	13811
Loretto Hospital +$^{1-3}$-X26 645 S. Central Ave., Chicago 44	Church	142	6,362	None	65	12	No	150	6 Rotating General	13911
Lutheran Deaconess Hospital +^{3} 1138 N. Leavitt St., Chicago 22	Church	186	7,320	Req	27	12	No	100	5 Rotating General	14011
Mercy Hospital +$^{1-3}$-X26 2537 S. Prairie Ave., Chicago 16	Church	352	9,235	Req	45	12	No	100	18 Rotating General	14111
Michael Reese Hospital +$^{1-3}$-X25 29th St. and Ellis Ave., Chicago 16	NPAssn	716	19,870	Req	62	12	(143)	50	37 Rotating General 1 Straight Medicine 1 Straight Surgery 1 Straight Ped.	14211 14232 14233 14234
Mother Cabrini Memorial Hospital ^{3} 1200 W. Cabrini St., Chicago 7	Church	130	5,247	Req	54	12	No	100	5 Rotating General	14311

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
ILLINOIS—Continued										
Mount Sinai Hospital +$^{1-3}$-X24 2750 W. 15th Pl., Chicago 8	NPAssn	296	11,105	OP	43	12	No	50	12 Rotating General 2 Rot. (Surg.-Major)	14411 14413
Norwegian American Hospital +$^{1-3}$ 1044 N. Francisco Ave., Chicago 22	NPAssn	174	6,563	None	29	12	No	150	6 Rotating General	14511
Passavant Memorial Hospital +$^{1-3}$-X25 303 E. Superior St., Chicago 11	NPAssn	265	7,649	Req	65	12	(136)	25	11 Rotating General	14611
Presbyterian Hospital +$^{1-3}$-X28 1753 W. Congress St., Chicago 12	NPAssn	450	14,303	Req	66	12	No	100	22 Rotating General	14711
Provident Hospital +$^{1-3}$ 426 E. 51st St., Chicago 15	NPAssn	205	.....	Req	42	12	No	100	9 Rotating General 1 Straight Surgery	14811 14833
Ravenswood Hospital +$^{1-3}$ 1931 Wilson Ave., Chicago 40	NPAssn	207	7,780	Req	67	12	No	70	8 Rotating General 1 Rot. (Surg.-Major) 1 Rot. (Ob.-Gyn.-Maj.) 1 Straight Medicine 1 Straight Surgery	14911 14913 14915 14932 14933
St. Anne's Hospital +$^{1-3}$-x26 4950 Thomas St., Chicago 51	Church	294	12,220	None	30	12	No	150	12 Rotating General	15211
St. Bernard's Hospital +$^{1-3}$ 6337 S. Harvard Ave., Chicago 21	Church	181	5,323	None	27	12	No	150	8 Rotating General	15311
St. Elizabeth Hospital +-x26 1431 N. Claremont Ave., Chicago 22	Church	309	9,977	None	29	12	No	125	8 Rotating General	15411
St. Joseph Hospital +$^{1-3}$-x26 2100 N. Burling, Chicago 14	Church	197	5,824	Req	42	12	No	100	8 Rotating General	15511
St. Luke's Hospital +$^{1-3}$-X25-28 1439 S. Michigan Ave., Chicago 5	NPAssn	566	14,959	None	65	12	No	25	36 Rotating General	15611
St. Mary of Nazareth Hospital + 1120 N. Leavitt St., Chicago 22	Church	263	9,250	Req	33	12	No	200	10 Rotating General	15711
South Chicago Community Hospital $^{1-3}$ 2320 E. 93d St., Chicago 17	NPAssn	242	9,641	Req	26	12	No	200	8 Rotating General	15811
Swedish Covenant Hospital +^{3} 5145 N. California, Chicago 25	Church	187	6,454	None	33	12	No	150	8 Rotating General	15911
University of Chicago Clinics +$^{1-3-4}$-X27 950 E. 59th St., Chicago 37	NPAssn	542	13,871	Req	72	12	No	125	36 Rotating General 3 Straight Ped.	16011 16034
University of Illinois Research and Educational Hospitals +$^{1-4}$-X28 1819 W. Polk St., Chicago 12	State	437	5,877	Req	87	12	No	25	30 Rotating General	15011
Walther Memorial Hospital $^{1-3}$ 1116 N. Kedzie Ave., Chicago 51	Church	175	6,465	Req	36	12	No	100	6 Rotating General	16111
Wesley Memorial Hospital +$^{1-3}$-X25 250 E. Superior St., Chicago 11	Church	572	15,111	Req	68	12	(135)	25	32 Rotating General	16211
Women and Children's Hospital +$^{2-3}$ 1600 W. Maypole Ave., Chicago 12	NPAssn	115	3,530	Req	44	12	No	60	4 Rotating General	16311
Woodlawn Hospital +$^{1-3}$ 6060 Drexel Ave., Chicago 37	Corp	140	4,169	Req	62	12	No	150	4 Rotating General	16411
Decatur and Macon County Hospital +^{1} 2300 N. Edward, Decatur	NPAssn	248	8,916	Req	24	12	(142)	125	4 Rotating General	85711
St. Mary's Hospital $^{1-3}$ 129 N. Eighth, East St. Louis	Church	290	9,305	Req	29	12	No	150	10 Rotating General	16511
Memorial Hospital $^{1-3}$ Avon and Schiller Sts., Elmhurst	NPAssn	186	8,890	None	39	12	No	200	4 Rotating General 1 Rot. (Med.-Major) 1 Rot. (Surg.-Major) 1 Rot. (Ped.-Major) 1 Rot. (Ob.-Gyn.-Major)	16611 16612 16613 16614 16615
Evanston Hospital +^{1}-X25 2650 Ridge Ave., Evanston	NPAssn	835	9,925	Req	78	12	(135)	25	18 Rotating General	16711
St. Francis Hospital +$^{1-3}$ 355 Ridge Ave., Evanston	Church	383	13,873	Req	55	12	No	125	16 Rotating General	16811
Little Company of Mary Hospital +$^{1-3}$-x26 95th and California Ave., Evergreen Park 42	Church	371	17,428	Req	28	12	No	150	15 Rotating General	16911
St. Joseph's Hospital +^{3} 372 N. Broadway, Joliet	NPAssn	300	10,584	Req	20	12	No	100	6 Rotating General	17011
Moline Public Hospital $^{1-3}$ 622 5th Ave., Moline	City	198	9,551	Req	28	12	No	100	3 Rotating General	17111
Oak Park Hospital ^{1} 525 Wisconsin Ave., Oak Park	Church	146	5,603	None	23	12	No	100	4 Rotating General	17211
West Suburban Hospital +-x28 518 N. Austin Blvd., Oak Park	NPAssn	327	12,724	Req	44	12	No	100	12 Rotating General	17311
Methodist Hospital of Central Illinois +$^{1-3}$ 221 N. Glen Oak Ave., Peoria	Church	200	9,325	None	34	12	No	125	15 Rotating General	17411
St. Francis Hospital +$^{1-3}$ 530 N. Glen Oak Ave., Peoria 4	Church	572	17,705	Req	37	12	No	75	18 Rotating General	17511
Rockford Memorial Hospital $^{1-3}$ 507 Chestnut St., Rockford	NPAssn	129	5,639	None	57	12	No	150	4 Rotating General	17711
St. Anthony Hospital +$^{1-3}$ 1401 E. State St., Rockford	Church	240	8,983	Req	45	12	No	100	4 Rotating General	17811
Swedish-American Hospital + 1316 Charles St., Rockford	NPAssn	200	7,818	Req	48	12	No	150	6 Rotating General	17911
Memorial Hospital $^{1-3}$ 1st and Miller Sts., Springfield	NPAssn	270	7,060	None	34	12	No	175	4 Rotating General	18011
INDIANA—Hospitals, 17; Internships, 191										
St. Francis Hospital +^{1} N. 17th Ave., Beech Grove	Church	170	8,121	None	30	12	No	215	4 Rotating General	85811
St. Catherine Hospital ^{1} 4321 Fir St., East Chicago	Church	311	10,059	None	37	12	No	125	7 Rotating General	18111
Protestant Deaconess Hospital +^{1} 600-700 Mary St., Evansville 10	Church	260	12,007	Req	31	12	No	150	4 Rotating General	18211
Lutheran Hospital ^{1} 3024 Fairfield, Fort Wayne 6	Church	210	7,688	Req	27	12	No	200	4 Rotating General	18311
St. Joseph Hospital +^{1} 730 W. Berry St., Fort Wayne 2	Church	270	11,763	None	30	12	No	225	8 Rotating General	90411
Methodist Hospital +^{1} 1600 W. 6th Ave., Gary	Church	242	10,664	None	29	12	No	150	8 Rotating General	86011
St. Mary's Mercy Hospital 540 Tyler St., Gary	Church	250	9,293	Req	29	12	No	150	8 Rotating General	18411
St. Margaret Hospital +^{1} 25 Douglas St., Hammond	Church	260	12,345	None	23	12	No	150	10 Rotating General	18511
Indianapolis General Hospital +$^{1-4}$-X29 960 Locke St., Indianapolis 7	City	682	10,337	Req	37	12	(144)	90	40 Rotating General	18611
Indiana University Medical Center +$^{1-4}$-X29 1040-1232 W. Michigan St., Indianapolis 7	State	522	12,768	None	73	12	No	100	26 Rotating General 4 Straight Surgery	18711 18733
Methodist Hospital +^{1} 1604 N. Capitol Ave., Indianapolis 7	Church	623	25,875	Req	36	12	No	210	24 Rotating General	18811
St. Vincent's Hospital +^{1} 120 W. Fall Creek Blvd., Indianapolis 7	Church	300	12,645	Req	53	12	No	210	11 Rotating General	18911

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients *Admitted*	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
INDIANA—Continued										
St. *Elizabeth Hospital* [+1-3] 1021 N. 14th St., Lafayette	Church	305	9,235	Req	38	12	No	150	12 Rotating General	19011
St. Joseph Hospital [1] 215 W. Fourth St., Mishawaka	Church	120	4,691	Req	27	12	No	150	3 Rotating General	19111
Ball Memorial Hospital [+1-3] 2401 University Ave., Muncie	NPAssn	248	9,994	Req	30	12	No	150	6 Rotating General	19211
Memorial Hospital [+1] 604 N. Main St., South Bend 1	NPAssn	218	9,922	Req	47	12	No	150	6 Rotating General	19311
St. Joseph's Hospital [1] 401 N. Notre Dame Ave., South Bend 17	Church	171	7,132	Req	40	12	(145)	125	6 Rotating General	19411
IOWA—Hospitals, 11; Internships, 92										
Mercy Hospital [1-3] 835 Sixth Ave., S. E., Cedar Rapids	Church	206	8,551	None	38	12	No	200	4 Rotating General	19611
St. Luke's Methodist Hospital [+1-3] 1026 A Ave., N. E., Cedar Rapids	Church	295	10,850	Req	37	12	No	125	6 Rotating General	19711
Mercy Hospital [1] 420 E. Washington Ave., Council Bluffs	Church	186	6,019	Req	23	12	No	100	6 Rotating General	19811
Mercy Hospital [1-3] 1326 W. Lombard St., Davenport	Church	255	9,045	Req	26	12	No	150	6 Rotating General	85011
Broadlawns, *Polk County Hospital* [+1-3] 18th and Hickman Rd., Des Moines 14	County	161	4,479	Req	54	12	No	130	12 Rotating General	19911
Iowa Lutheran Hospital [1-3] 716 Parnell Ave., Des Moines 16	Church	200	6,979	Req	33	12	No	125	8 Rotating General	20011
Iowa Methodist Hospital [+1-3] 1200 Pleasant St., Des Moines	Church	392	14,271	Req	41	12	No	100	10 Rotating General	20111
Mercy Hospital [+1-3] 5th and Ascension Sts., Des Moines 14	Church	190	9,192	Req	83	12	(146)	150	8 Rotating General	20211
Mercy Hospital [+1-3] 214 N. Van Buren, Iowa City	Church	190	5,854	Req	35	12	No	150	4 Rot. (Surg.-Major)	86113
University Hospitals [+1-3-4-X30] Newton Rd., Iowa City	State	896	17,985	Req	68	12	No	60	20 Rotating General	20311
St. Joseph Mercy Hospital 2101 Court St., Sioux City 5	Church	450	10,386	Req	15	12	No	175	8 Rotating General	20411
KANSAS—Hospitals, 7; Internships, 81										
Bethany Hospital [1-3] 12th and Reynolds Ave., Kansas City 7	Church	150	7,363	None	48	12	No	150	6 Rotating General	20511
Providence Hospital [1] 18th and Barnett, Kansas City 2	Church	150	6,732	Req	46	12	(193)	100	6 Rotating General	20611
St. *Margaret Hospital* [+] 8th St. and Vermont	Church	194	5,820	Req	45	12	No	125	6 Rotating General	20711
University of Kansas M [illegible] -X I 39th and Rainbow Blvd., Kansas City	State	488	10,900	Req	67	12	No	25	30 Rotating General	20811
St. Francis Hospital [+1-3] 928 N. Emporia Ave., Wichita 5	Church	465	18,268	Req	44	12	(147)	125	15 Rotating General	20911
Wesley Hospital [+1-3] 550 N. Hillside, Wichita 6	Church	390	15,329	Req	41	12	(147)	100	12 Rotating General	21011
Wichita-St. Joseph Hospital [1-3] 3400 Grand Ave., Wichita 17	Church	250	9,634	Req	25	12	(147)	150	6 Rotating General	21111
KENTUCKY—Hospitals, 10; Internships, 103										
St. Elizabeth Hospital [1-3] 21st and Eastern Ave., Covington	Church	304	11,227	Req	38	12	No	200	12 Rotating General	21211
William Booth Memorial Hospital [1-3] 323 E. 2d Street, Covington	Church	128	5,266	Req	21	12	No	200	6 Mix. Med. Ob. Gyn. Surg.	21322
Good Samaritan Hospital [+1-3] 310 S. Limestone, Lexington	Church	300	11,489	Req	31	12	No	150	12 Rotating General	21411
St. Joseph Hospital [+1-3] 544 W. 2d St., Lexington	Church	314	10,804	Req	43	12	No	100	8 Rotating General	21511
Kentucky Baptist Hospital [1] 810 Barret Ave., Louisville 4	Church	345	12,104	Req	22	12	(148)	200	10 Rotating General	21611
Louisville General Hospital [+1-3-4-X32] 323 E. Chestnut St., Louisville	CyCo	372	10,030	Req	49	12	(149)	50	20 Rotating General 2 Straight Medicine 2 Straight Ped.	21711 21732 21734
Norton Memorial Infirmary [+1-3] 231 W. Oak St., Louisville 3	NPAssn	280	10,379	None	32	12	No	150	6 Rotating General	21811
St. Anthony Hospital [1-3] 1313 St. Anthony Pl., Louisville 4	Church	220	8,214	None	30	12	No	200	5 Rotating General	21911
St. Joseph Infirmary [+1-3] 735 Eastern Parkway, Louisville 8	Church	448	16,657	Req	40	12	(150)	150	16 Rotating General	22011
SS. Mary and Elizabeth Hospital [3] 1367 S. 12th St., Louisville 10	Church	175	8,499	Req	31	12	(151)	...	4 Rotating General	22111
LOUISIANA—Hospitals, 10; Internships, 234										
Baptist Hospital [+1-3] 327 3d St., Alexandria	Church	224	7,938	Req	30	12	(153)	125	4 Rotating General	22211
Baton Rouge General Hospital [+1] 3600 Florida St., Baton Rouge 9	Church	250	11,506	Req	37	12	No	100	5 Rotating General	22311
Charity Hospital of Louisiana [+1-3-4-X33-34] 1532 Tulane Ave., New Orleans 12	State	3,223	62,704	Req	58	12	No	10	130 Rotating General	22411
Hotel Dieu, Sisters Hospital [+1-3] 2004 Tulane Ave., New Orleans 16	Church	292	13,594	Req	36	12	No	150	10 Rotating General	22511
Mercy Hospital 301 N. Jefferson Davis Pkwy., New Orleans 19	Church	125	5,633	Req	28	12	No	150	8 Rotating General	22611
Southern Baptist Hospital [+1-3] 2700 Napoleon Ave., New Orleans 15	Church	500	34,800	Req	37	12	No	100	16 Rotating General	22811
Touro Infirmary [+1-3-X34] 3516 Prytania St., New Orleans 15	NPAssn	452	16,442	Req	55	12	No	20	20 Rotating General	22911
Confederate Memorial Medical Center [+1] 1240 Texas Ave., Shreveport	State	888	16,258	Req	32	12	No	20	36 Rotating General	23211
North Louisiana Sanitarium [1] 1130 Louisiana Ave., Shreveport	Corp	135	4,990	Req	45	12	(154)	200	1 Rotating General 1 Rot. (Med.-Major) 1 Rot. (Surg.-Major)	23011 23012 23013
T. E. Schumpert Memorial Hospital [1] 941 Margaret Pl., Shreveport 15	NPAssn	107	6,240	Req	42	12	No	250	2 Rot. (Surg.-Major)	23113
MAINE—Hospitals, 4; Internships, 27										
Eastern Maine General Hospital [+1-3] 489 State St., Bangor	NPAssn	294	9,206	Req	37	12	No	75	8 Rotating General	23311
Central Maine General Hospital [+1-3] 300 Main St., Lewiston	NPAssn	221	6,868	Req	66	12	No	100	4 Rotating General	23411
St. Mary's General Hospital [1-3] 318 Sabattus St., Lewiston	Church	150	4,583	Req	26	12	No	80	3 Rotating General	25311

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
MAINE—Continued										
Maine General Hospital $^{+1}$ 22 Arsenal St., Portland 4	NPAssn	311	8,831	Req	40	12	No	50	12 Rotating General	23611
MARYLAND—Hospitals, 18; Internships, 248										
Baltimore City Hospitals $^{+1-3-4}$-x35-X36 4940 Eastern Ave., Baltimore 24	City	1,460	7,441	Req	54	12	No	50	12 Rotating General 6 Straight Medicine 6 Straight Ped.	23711 23732 23734
Bon Secours Hospital $^{+3}$ 2025 W. Fayette St., Baltimore 23	Church	168	6,393	Req	24	12	No	200	6 Rotating General	23811
Church Home and Hospital $^{+1-3}$ Broadway and Fairmount Ave., Baltimore 31	Church	173	5,605	Req	46	12	(157)	175	8 Rotating General 1 Straight Medicine	23911 23932
Franklin Square Hospital $^{+1-3}$ 110 North Calhoun St., Baltimore 23	NPAssn	162	4,270	Req	30	12	No	100	8 Rotating General	24011
Hospital for Women $^{+1-3}$ Lafayette Ave. and John St., Baltimore 17	NPAssn	141	6,263	Req	56	12	(157)	50	3 Mix. Med. Ob. Gyn.	24109
Johns Hopkins Hospital $^{+1-3-4}$-X35 601 N. Broadway, Baltimore 5	NPAssn	980	21,072	Req	66	12	(156)	...	14 Straight Medicine 10 Straight Medicine Private Ward 14 Straight Surgery 17 Straight Ped.	24232 24238 24233 24234
Lutheran Hospital $^{+1-3}$ 730 Ashburton St., Baltimore 16	Church	187	7,411	Req	49	12	No	100	7 Rotating General	24311
Maryland General Hospital $^{+1-3}$ Linden Ave. and Madison St., Baltimore 1	Church	229	6,717	Req	23	12	No	75	8 Rotating General	24411
Mercy Hospital $^{+1}$-X36 Calvert and Saratoga Sts., Baltimore 2	Church	299	10,386	Req	42	12	(159)	225	16 Rotating General	24511
St. Agnes Hospital $^{+1-3}$ Wilkens and Caton Aves., Baltimore 29	Church	219	7,854	Req	17	12	(157)	100	12 Rotating General	24711
St. Joseph's Hospital $^{+1-3-4}$ 1400 N. Caroline St., Baltimore 13...............	Church	250	7,264	Req	23	12	No	150	8 Rotating General	24811
Sinai Hospital $^{+1-3-4}$-x35 1714 E. Monument St., Baltimore 5	NPAssn	313	11,560	Req	55	12	No	75	16 Rotating General 1 Straight Medicine 1 Straight Surgery 1 Straight Ped.	24911 24932 24933 24934
South Baltimore General Hospital $^{+1-3}$ 1213 Light St., Baltimore 30	NPAssn	154	6,134	Req	33	12	No	140	6 Rotating General	25011
Union Memorial Hospital $^{+1-3}$ 33d and Calvert Sts., Baltimore 18	NPAssn	342	9,628	Req	50	12	No	50	16 Rotating General	25111
University Hospital $^{+1-3-4}$-X36 Redwood and Greene Sts., Baltimore 1	State	435	11,226	Req	49	12	No	25	36 Rotating General	25211
Suburban Hospital $^{1-3}$ 8600 Georgetown Rd., Bethesda 14	NPAssn	115	5,405	Req	40	12	No	150	3 Rotating General	86211
Prince George's General Hospital $^{1-3}$-x19 Cheverly	County	235	8,081	Req	42	12	No	150	8 Rotating General	90511
Washington County Hospital $^{+1-3}$ King St., Hagerstown	NPAssn	249	7,562	None	20	12	No	200	4 Rotating General	25311
MASSACHUSETTS—Hospitals, 37; Internships, 336										
Beverly Hospital $^{+1-3}$ Heather and Herrick Sts., Beverly	NPAssn	186	5,802	Req	69	12	No	50	6 Rotating General	25511
Beth Israel Hospital $^{+1-3-4}$-X38-39 330 Brookline Ave., Boston 15	NPAssn	362	9,916	Req	65	12	(248)	25	6 Straight Medicine 5 Straight Surgery 1 Straight Ped.	25632 25633 25634
Boston City Hospital $^{+1-3-4}$-X37-38-39 818 Harrison Ave., Boston 18	City	2,306	36,675	Req	35	12	No	92		
Chrm. Com. Internship Exams	I and III	Medical Tufts							16 Straight Medicine	25793
	II and IV	Medical Harvard							16 Straight Medicine	25794
	V and VI	Medical Boston Univ.							16 Straight Medicine	25795
	I	Surgical Tufts							8 Straight Surgery	25796
	III	Surgical Boston Univ.							8 Straight Surgery	25798
	V	Surgical							8 Straight Surgery	25701
		Straight Specialties Boston Univ.							4 Straight Ped.	25704
Carney Hospital $^{+1-3}$-X39 10-50 Old Harbor St., Boston 27	Church	216	6,303	Req	36	12	(166)	100	9 Rotating General	25811
Children's Medical Center $^{+1-3-4}$-X38 300 Longwood Ave., Boston 15	NPAssn	329	9,641	Req	87	12	(163)	...	4 Straight Ped.	25934
Faulkner Hospital $^{+1-3}$ 1153 Centre St., Boston 30	NPAssn	144	4,063	None	59	12	No	50	8 Mix. Med. Surg. Ob. Gyn.	26022
Massachusetts General Hospital $^{+1-3-4}$-X38 Fruit St., Boston 14	NPAssn	966	20,799	Req	60	12	(165)	...	12 Straight Medicine 8 Straight Surgery 6 Straight Ped.	26132 26133 26134
Massachusetts Memorial Hospitals $^{+1-3-4}$-X37 750 Harrison Ave., Boston 18	NPAssn	360	7,406	Req	52	12	(160)	...	10 Straight Medicine 6 Straight Surgery	26232 26233
New England Center Hospital $^{+1-3}$-X39 Harrison Ave. and Bennet St., Boston 11	NPAssn	186	6,325	Req	67	12	(162)	42	10 Straight Medicine 8 Straight Surgery	26332 26333
New England Hospital $^{+1-3}$-x39 Dimock St. and Columbus Ave., Boston 19	NPAssn	135	4,253	Req	32	12	(161)	35	3 Rotating General	26411
Peter Bent Brigham Hospital $^{+1-3-4}$-x37-X38 721 Huntington Ave., Boston 15	NPAssn	280	5,855	Req	76	12	(165)	25	10 Straight Medicine 6 Straight Surgery	26532 26533
St. Elizabeth's Hospital $^{+1-3}$-x39 736 Cambridge St., Brighton 35	Church	400	12,100	Req	51	12	No	95	10 Rotating General	26611
Brockton Hospital $^{1-3}$ 680 Centre St., Brockton 11	NPAssn	182	6,005	Req	36	12	No	250	4 Rotating General	26711
Cambridge City Hospital $^{+1-3}$-x39 1493 Cambridge St., Cambridge 39	City	270	6,206	Req	37	12	No	100	10 Rotating General	26811
Mount Auburn Hospital $^{+1-3}$ 330 Mt. Auburn St., Cambridge 38	NPAssn	239	7,056	Req	57	24	(165)	100	6 Rotating General	26911
Truesdale Hospital $^{+1-3}$ 1820 Highland Ave., Fall River	NPAssn	152	5,158	Req	50	12	No	50	6 Rotating General	27011
Union Hospital ^{1} 538 Prospect St., Fall River	NPAssn	250	6,231	Req	38	12	No	150	4 Rotating General	86411
Burbank Hospital $^{+1}$ Nichols Rd., Fitchburg	City	250	6,231	Req	38	12	No	150	4 Rotating General	27211
Holyoke Hospital $^{+1-3-4}$ 575 Beech St., Holyoke	NPAssn	141	4,117	Req	27	12	No	100	1 Rotating General 1 Rot. (Med.-Major) 1 Rot. (Surg.-Major)	27311 27312 27313
Lawrence General Hospital $^{+1}$ 1 Garden St., Lawrence	NPAssn	188	5,993	Req	53	12	No	100	4 Rotating General	27411
Lowell General Hospital $^{1-3}$ 295 Varnum Ave., Lowell	NPAssn	183	5,564	Req	34	12	No	50	4 Rotating General	27511
St. John's Hospital ^{3} 14 Bartlett St., Lowell	Church	184	6,489	Req	37	12	No	100	4 Rotating General	27611
St. Joseph's Hospital ^{3} 830 Merrimack St., Lowell	Church	180	6,494	Req	19	12	No	100	3 Rotating General	27711
Lynn Hospital $^{+1-3}$ 212 Boston St., Lynn	NPAssn	248	9,584	Req	55	12	No	100	6 Rotating General	27811

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
MASSACHUSETTS—Continued										
St. Luke's Hospital +$^{1-3}$ 101 Page St., New Bedford	NPAssn	273	8,778	Req	27	12	No	100	2 Rotating General	28211
Newton-Wellesley Hospital +$^{1-3}$ 2014 Washington St., Newton Lower Falls 62	NPAssn	235	7,530	Req	50	12	No	125	12 Rotating General	28311
Pittsfield General Hospital 741 North St., Pittsfield	NPAssn	197	5,354	Req	28	12	No	50	2 Rotating General	28111
St. Luke's Hospital $^{1-3}$ 379 East St., Pittsfield	Church	150	4,846	Req	42	12	No	100	2 Rotating General	28211
Quincy City Hospital +$^{1-3}$ 114 Whitwell St., Quincy 69	City	258	9,651	Req	42	12	No	125	12 Rotating General	28311
Salem Hospital +$^{1-3}$ 81 Highland Ave., Salem	NPAssn	242	8,007	Req	42	12	No	110	6 Rotating General	28411
Mercy Hospital $^{1-3}$ 233 Carew St., Springfield 4	Church	340	11,396	Req	29	12	No	100	6 Rotating General	28511
Springfield Hospital +$^{1-3}$ 759 Chestnut St., Springfield 7	NPAssn	285	7,428	Req	58	12	(167)	50	8 Rotating General	28611
Wesson Memorial Hospital $^{1-3}$ 140 High St., Springfield 5	NPAssn	142	5,540	None	34	12	(167)	100	4 Rotating General	28711
Waltham Hospital ^{1}-x39 Hope Ave., Waltham 54	NPAssn	166	5,213	Req	47	12	No	125	4 Rotating General	28811
Memorial Hospital +$^{1-3-4}$ 119 Belmont St., Worcester 5	NPAssn	269	9,954	Req	42	12	No	100	7 Rotating General	28911
St. Vincent Hospital +$^{1-3}$ 73 Vernon St., Worcester 10	Church	242	7,948	None	36	12	No	150	12 Rotating General	29011
Worcester City Hospital +$^{1-4}$ 71 Jaques Ave., Worcester 3	City	480	13,320	Req	45	12	No	100	20 Rotating General	29111
MICHIGAN—Hospitals, 35; Internships, 538										
St. Joseph's Mercy Hospital +$^{1-3}$ 326 North Ingalls St., Ann Arbor	State	979	18,083	Req	68	12	(168)	150	12 Rotating General	29211
University Hospital +$^{1-3-4}$-X40 1313 East Ann St., Ann Arbor	State	979	18,083	Req	68	12	No	107	8 Rot. (Med.-Major) 14 Rot. (Surg.-Major) 3 Rot. (Ped.-Major) 3 Rot. (Ob. Gyn.-Major) 2 Rot. (Neurol.-Major) 2 Rot. (Derm.-Major) 3 Rot. (Psych.-Major) 3 Rot. (Anes.-Major) 1 (Otology-Major) 1 Rot. (Ophthal. Major) 2 Rot. (Phys. Med. Rehab.-Major) 10 Rot. (Gen. Prac.-Maj.) 2 Rot. (Path.-Major)	29312 29313 29314 29315 29374 29375 29376 29377 29378 29379 29380 29381 29386
Leila Y. Post Montgomery Hospital +^{1} 9 Emmett St., Battle Creek	Church	200	9,107	Req	54	12	No	150	4 Rotating General	29411
City of Detroit Receiving Hospital +$^{1-3}$-X41 1326 St. Antoine St., Detroit 26	City	682	23,920	Req	55	12	No	220	66 Rotating General	29511
Detroit Memorial Hospital +$^{1-3}$ 1420 St. Antoine St., Detroit 26	NPAssn	328	11,570	Req	45	12	(171)	200	16 Rotating General	29611
Evangelical Deaconess Hospital +$^{1-3}$ 3245 E. Jefferson Ave., Detroit 7	Church	185	8,951	Req	41	12	(172)	250	5 Rotating General	29711
Grace Hospital +$^{1-3}$-x41 4160 John R. St., Detroit 1	NPAssn	641	26,162	Req	42	12	No	200	24 Rotating General	29811
Harper Hospital +$^{1-3-4}$ 3825 Brush St., Detroit 1	NPAssn	600	24,128	Req	44	12	(170)	200	36 Rotating General	29911
Henry Ford Hospital +$^{1-3}$ 2799 West Grand Blvd., Detroit 2	NPAssn	638	19,258	Req	72	12	No	175	20 Rot. (Med.-Major) 20 Rot. (Surg.-Major)	30012 30013
Jennings Memorial Hospital +^{1} 7815 E. Jefferson Ave., Detroit 14	NPAssn	135	3,562	None	31	12	(174)	200	4 Rotating General	30111
Mount Carmel Mercy Hospital +$^{1-4}$ 6071 West Outer Drive, Detroit 35	Church	475	23,952	Req	36	12	No	125	18 Rotating General	30211
Providence Hospital +$^{1-3}$ 2500 W. Grand Blvd., Detroit 8	Church	372	14,880	None	43	12	(175)	225	12 Rotating General	30311
St. John Hospital 22101 Moross Road, Detroit 36	Church	272	8,376	Req	43	12	No	225	8 Rotating General	91511
St. Joseph Mercy Hospital +^{1} 2200 East Grand Blvd., Detroit 11	Church	236	10,760	Req	37	12	(171)	200	7 Rotating General	30411
Woman's Hospital +$^{1-3}$ 432 E. Hancock Ave., Detroit 1	NPAssn	246	11,425	Req	40	12	(171)	225	12 Rotating General	30511
Wayne County General Hosp. and Infirmary +$^{1-3}$ Eloise	County	537	7,031	Req	54	12	(173)	248	36 Rotating General	30611
Hurley Hospital +$^{1-3}$ Sixth Ave. and Begole St., Flint 2	City	428	17,479	None	42	12	(178)	195	26 Rotating General	30711
McLaren General Hospital +$^{1-3}$ 401 Ballenger Highway, Flint 2	NPAssn	170	7,671	Req	67	12	(176)	250	4 Rotating General	86611
St. Joseph Hospital +$^{1-3}$ 302 Kensington Ave., Flint 2	Church	250	12,037	None	35	12	(177)	250	12 Rotating General	30811
Blodgett Memorial Hospital +$^{1-3}$ 1840 Wealthy St., S.E., Grand Rapids 6	NPAssn	179	8,318	Req	26	12	(179)	150	12 Rotating General	30911
Butterworth Hospital +$^{1-3}$ 300 Bostwick Ave., N.E., Grand Rapids 2	NPAssn	286	13,186	Req	35	12	No	200	16 Rotating General	31011
St. Mary's Hospital +^{1} 250 Cherry St., S.E., Grand Rapids 3	Church	256	10,541	Req	45	12	No	200	12 Rotating General	31111
Bon Secours Hospital $^{1-3}$ 468 Cadieux Road, Grosse Pointe 30	Church	100	4,837	Req	36	12	No	225	4 Rotating General	90611
Highland Park General Hospital +$^{1-3}$ 369 Glendale, Highland Park 3	City	270	11,207	Req	37	12	(169)	250	16 Rotating General	31211
Borgess Hospital +$^{1-3}$ 1521 Gull Road, Kalamazoo 62	Church	265	8,325	None	35	12	(180)	150	4 Rotating General	31311
Bronson Methodist Hospital +$^{1-3}$ 252 E. Lovell St., Kalamazoo 8	Church	200	7,952	Req	57	12	No	200	4 Rotating General	31411
Edward W. Sparrow Hospital +^{1} 1215 E. Michigan Ave., Lansing 12	NPAssn	291	12,900	Req	59	12	(181)	250	16 Rotating General	31511
St. Lawrence Hospital +^{1} 1210 W. Saginaw St., Lansing 15	Church	270	11,079	None	41	12	No	225	12 Rotating General	31611
Hackley Hospital +$^{1-4}$ 101 E. Forest Ave., Muskegon	NPAssn	205	8,045	Req	37	12	No	150	5 Rotating General	31711
Pontiac General Hospital +$^{1-3}$ 461 W. Huron St., Pontiac 18	City	198	11,036	Req	35	12	(182)	200	8 Rotating General	31811
St. Joseph Mercy Hospital +$^{1-3}$ 900 Woodard Ave., Pontiac 19	Church	315	13,372	Req	31	12	No	250	12 Rotating General	31911
Saginaw General Hospital +^{1} 1447 N. Harrison St., Saginaw	NPAssn	208	9,022	Req	69	12	(183)	270	6 Rotating General	32011

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
MICHIGAN—Continued										
St. Luke's Hospital $^{+1-3}$ 705 Cooper St., Saginaw	Church	144	5,962	Req	56	12	No	250	6 Rotating General	32111
St. Mary's Hospital $^{+}$ 830 S. Jefferson St., Saginaw 16	Church	174	7,746	Req	69	12	No	300	5 Rotating General	32211
James Decker Munson Hospital $^{+1-3}$ 6th St., Traverse City	NPAssn	134	5,255	None	36	12	No	225	4 Rotating General	32311
MINNESOTA—Hospitals, 16; Internships, 217										
St. Luke's Hospital $^{+1}$ 915 E. 1st St., Duluth 5	NPAssn	505	13,891	Req	68	12	(184)	75	18 Rotating General	32411
St. Mary's Hospital $^{+1-3}$ 429 E. 3rd St., Duluth 11	Church	285	10,980	Req	60	12	(184)	75	12 Rotating General	32511
Abbott Hospital and Janney Children's Hospital ^{1} 110 E. 18th St., Minneapolis 3	Church	150	6,863	Req	55	12	(186)	200	6 Rotating General	32611
Asbury Methodist Hospital $^{+1-3}$ 916 E. 15th St., Minneapolis 4	Church	168	7,305	None	56	12	No	150	4 Rotating General	86711
Minneapolis General Hospital $^{+1-3-4}$-X42 619 S. 5th St., Minneapolis 15	City	574	7,941	Req	58	12	No	50	39 Rotating General	32911
Mount Sinai Hospital $^{+1-3}$ 737 E. 22nd St., Minneapolis 4	NPAssn	197	6,411	None	57	12	No	100	10 Rotating General	86811
Northwestern Hospital $^{+1-3}$ 810 E. 27th St., Minneapolis 7	NPAssn	260	11,634	None	57	12	No	175	8 Rotating General 1 Straight Medicine 1 Straight Surgery 1 Straight Ped.	33011 33032 33033 33034
St. Barnabas Hospital $^{+1-3}$ 920 S. 7th St., Minneapolis 4	NPAssn	270	10,353	Req	65	12	No	135	10 Rotating General	33111
St. Mary's Hospital $^{+1-3}$ 2500 S. Sixth St., Minneapolis 6	Church	325	14,167	Req	46	12	(185)	100	10 Rotating General	33211
Swedish Hospital $^{+1-3}$ 914 S. 8th St., Minneapolis 4	NPAssn	420	16,449	None	33	12	No	150	8 Rotating General	33311
University of Minnesota Hospitals $^{+1-3-4}$-X42 412 Delaware, S.E., Minneapolis 14	State	577	10,965	Req	82	12	(189)	25	8 Straight Medicine 12 Straight Surgery 11 Straight Ped.	33432 33433 33434
Ancker Hospital $^{+1-3}$ 495 Jefferson Ave., St. Paul 1	CyCo	850	7,819	Req	63	12	No	50	26 Rotating General	33511
Bethesda Hospital $^{1-3}$ 559 Capitol Blvd., St. Paul 1	Church	162	9,062	Req	37	12	(190)	150	5 Rotating General	33611
Charles T. Miller Hospital $^{+1-3-4}$ 125 W. College Ave., St. Paul 2	NPAssn	275	10,430	Req	56	12	(188)	75	11 Rotating General	33711
St. Joseph's Hospital $^{+1-3}$ 69 W. Exchange St., St. Paul 2	Church	283	13,542	Req	55	12	(190)	75	12 Rotating General	33811
St. Luke's Hospital $^{1-3}$ 287 N. Smith Ave., St. Paul 2	Church	122	5,104	Req	38	12	(187)	100	4 Rotating General	33911
MISSISSIPPI—Hospitals, 2; Internships, 18										
Mississippi Baptist Hospital $^{+1}$ 1190 N. State St., Jackson	Church	260	13,273	None	29	12	No	50	12 Rotating General	34011
Mercy Hospital-Street Memorial $^{+1}$ 900 Crawford St., Vicksburg	Church	142	4,357	Req	33	12	(191)	100	6 Rotating General	34111
MISSOURI—Hospitals, 25; Internships, 406										
St. Louis County Hospital $^{+1-3}$ 601 S. Brentwood Blvd., Clayton 5	County	167	3,270	Req	45	12	No	150	12 Rotating General	34211
Kansas City General Hospital No. 1 $^{+}$-x31 24th and Cherry St., Kansas City 8	City	537	8,923	Req	59	12	No	50	30 Rotating General	34311
Kansas City General Hospital No. 2 $^{+1-3-4}$ 600 E. 22nd St., Kansas City 8	City	264	3,691	Req	43	12	No	50	10 Rotating General	34411
Menorah Hospital Medical Center $^{+1-3}$-X31 4949 Rockhill Road, Kansas City 10	NPAssn	334	10,208	Req	50	12	(193)	103	13 Rotating General	34511
Research Hospital $^{+1-3}$ 2300 Holmes St., Kansas City 8	NPAssn	211	7,823	Req	59	12	(192)	150	8 Rotating General	34611
St. Joseph Hospital $^{+3}$ Linwood Blvd. at Prospect, Kansas City 3	NPAssn	321	13,239	Req	52	12	No	150	14 Rotating General	34711
St. Luke's Hospital $^{+1-3}$ 44th and Nichols Parkway, Kansas City 11	Church	500	14,314	Req	66	12	No	150	15 Rotating General	34811
St. Mary's Hospital $^{+1-3}$ 101 Memorial Hospital Drive, Kansas City 8	Church	300	10,233	None	53	12	(199)	150	10 Rotating General	34911
Trinity Lutheran Hospital $^{1-3}$ 3001 Wyandotte, Kansas City 8	Church	165	6,008	None	47	12	(192)	100	6 Rotating General	35011
Missouri Methodist Hospital $^{+1}$ 8th and Faraon St., St. Joseph	Church	300	8,286	Req	33	12	No	125	8 Rotating General	35111
St. Joseph's Hospital $^{1-3}$ 923 Powell St., St. Joseph	Church	163	6,104	Req	27	12	(200)	200	3 Rotating General	35211
Barnes Hospital $^{+1-3}$-X44 600 S. Kingshighway Blvd., St. Louis 10	NPAssn	748	23,136	Req	69	12	(197)	10	10 Straight Med. Private 9 Straight Med. Ward 14 Straight Surgery	35332 35333 35334
Christian Hospital 4411 N. Newstead Ave., St. Louis 15	NPAssn	129	1,498	None	..	12	No	175	3 Rotating General	35411
De Paul Hospital $^{+1-3}$ 2415 N. Kingshighway, St. Louis 13	Church	270	9,864	Req	38	12	No	150	9 Rotating General	35511
Evangelical Deaconess Hospital $^{1-3}$ 6150 Oakland Ave., St. Louis 10	Church	254	8,370	Req	31	12	(196)	150	8 Rotating General	35611
Homer G. Phillips Hospital $^{+1-3-4}$-X44-74 2601 N. Whittier St., St. Louis 13	City	694	15,316	Req	36	12	(199)	155	40 Rotating General	35711
Jewish Hospital $^{+1-3-4}$ 216 S. Kingshighway Blvd., St. Louis 10	NPAssn	298	9,925	Req	43	12	No	75	14 Rotating General	35811
Lutheran Hospital $^{1-3}$ 2616 Potomac St., St. Louis 18	Church	165	6,211	None	24	12	No	100	6 Mix. Med. Surg. Ob. Gyn.	35922
Missouri Baptist Hospital $^{+1-3}$ 919 N. Taylor Ave, St. Louis 8	Church	450	12,993	Req	26	12	No	125	12 Rotating General 2 Rot. (Med.-Major) 2 Rot. (Surg.-Major)	36011 36012 36013
St. Anthony's Hospital $^{+1-3}$-x43 3520 Chippewa St., St. Louis 18	Church	250	8,776	None	25	12	(194)	100	7 Rotating General	36111
St. John's Hospital $^{+1-3}$-x43 307 S. Euclid Ave., St. Louis 10	NPAssn	362	11,400	Req	37	12	No	100	12 Rotating General	36211
St. Louis Children's Hospital $^{+1}$-X44 500 S. Kingshighway Blvd., St. Louis 10	NPAssn	136	3,767	Req	72	12	(198)	10	6 Straight Ped.	86934
St. Louis City Hospital $^{+1-3}$-X43-44 1515 Lafayette Ave., St. Louis 4	City	1,059	14,726	Req	58	12	(195)	112	32 Rotating General 12 Rot. (Med.-Major) 12 Straight Medicine 12 Straight Surgery 12 Straight Ped.	36311 36312 36332 36333 36334

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
MISSOURI—Continued										
St. Luke's Hospital $^{+1}$ 5535 Delmar Blvd., St. Louis 12	Church	184	6,000	Req	49	12	(196)	100	8 Rotating General	36411
St. Mary's Group of Hospitals $^{+1-3-4}$-X43 1402 S. Grand Blvd., St. Louis 4	Church	736	18,657	Req	48	12	No	60	20 Rotating General 9 Straight Medicine 6 Straight Surgery	36511 36532 36533
MONTANA—Hospitals, 2; Internships, 10										
St. James Hospital Silver and Idaho	Church	160	6,164	Req	30	12	No	150	4 Rotating General	36611
Montana Deaconess 1100 6th Ave. North, Great Falls	Church	200	5,926	Req	60	12	No	100	6 Rotating General	36711
NEBRASKA—Hospitals, 9; Internships, 64										
Bryan Memorial Hospital $^{1-3}$-X46 4848 Sumner St., Lincoln 6	Church	126	4,776	Req	51	12	No	100	4 Rotating General	36811
Lincoln General Hospital $^{+1-3-4}$-X46 2315 S. 17th St., Lincoln 2	NPAssn	183	5,620	Req	53	12	No	160	4 Rotating General	36911
St. Elizabeth Hospital $^{+1-3}$-X45 1145 South St., Lincoln 2	Church	220	8,312	None	55	12	No	200	6 Rotating General	37011
Bishop Clarkson Memorial Hospital $^{1-3}$-X46 26th at Dewey Ave., Omaha 5	Church	185	7,326	Req	58	12	(200)	100	5 Rotating General	37111
Creighton Memorial St. Joseph's Hospital $^{+1-3-4}$-X45 Tenth and Castelar Sts., Omaha 8	Church	575	14,984	Req	40	12	(202)	150	12 Rotating General	37211
Immanuel Hospital ^{1}-X46 34th and Fowler St., Omaha 11	Church	121	4,842	Req	49	12	(201)	100	6 Rotating General	37311
Nebraska Methodist Hospital $^{+1-3}$-X46 3612 Cuming St., Omaha 3	Church	177	7,053	Req	55	12	(200)	100	7 Rotating General	37411
St. Catherine's Hospital $^{+1-3}$-X45 Forrest Ave. and 9th St., Omaha 8	Church	200	7,324	None	25	12	(203)	150	8 Rotating General	37511
University of Nebraska Hospital $^{+1-3}$-X46 42nd St. and Dewey Ave., Omaha 5	State	197	3,364	Req	89	12	(201)	150	12 Rotating General	37611
NEW HAMPSHIRE—Hospitals, 1; Internships, 16										
Mary Hitchcock Memorial Hospital $^{+1-3}$-X47 2 Maynard St., Hanover	NPAssn	305	7,136	Req	82	12	No	80	16 Rotating General	37711
NEW JERSEY—Hospitals, 39; Internships, 353										
Atlantic City Hospital $^{+1-3}$ 26 S. Ohio Ave., Atlantic City	NPAssn	238	8,177	Req	46	12	(204)	100	12 Rotating General	37811
Bayonne Hospital and Dispensary $^{+1-3}$ East 30th St., Bayonne	NPAssn	220	6,797	Req	14	12	No	125	8 Rotating General	37911
Cooper Hospital $^{+1-3}$-x66-68 6th and Stevens Sts., Camden 3	NPAssn	397	15,901	Req	59	12	No	200	11 Rotating General	38011
West Jersey Hospital $^{+1-3-4}$-x65 Mt. Ephraim and Atlantic Aves., Camden 4	NPAssn	270	8,522	Req	48	12	No	175	8 Rotating General	38111
East Orange General Hospital $^{1-3}$ Munn and Central Aves., East Orange	NPAssn	120	4,630	Req	27	12	(206)	100	4 Rotating General	38211
Elizabeth General Hospital and Dispensary ^{3} 925 E. Jersey St., Elizabeth 4	NPAssn	203	65,280	Req	23	12	No	100	9 Rotating General	38411
St. Elizabeth Hospital $^{1-3}$ 204 S. Broad St., Elizabeth 2	Church	229	6,062	Req	25	12	No	100	6 Rotating General	38511
Englewood Hospital $^{+1-3}$ 350 Engle St., Englewood	NPAssn	190	7,269	Req	30	12	No	100	6 Rotating General	38611
Hackensack Hospital $^{+1-3}$ 22 Hospital Place, Hackensack	NPAssn	250	12,095	Req	36	12	No	100	12 Rotating General	38711
St. Mary's Hospital $^{1-3}$ Willow Ave. and 4th St., Hoboken	Church	388	7,419	Req	30	12	No	100	12 Rotating General	38811
Christ Hospital $^{1-3}$ 176 Palisade Ave	Church	309	7,499	Req	28	12	No	100	12 Rotating General	38911
Medical Center-Jersey Baldwin Ave., Jersey City 4	City	1,600	21,869	Req	25	12	(207)	41	25 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Ped.	39011 39032 39033 39034
St. Francis Hospital $^{1-3}$ 25 East Hamilton Place, Jersey City 2	Church	215	4,646	Req	24	12	(207)	90	6 Rotating General	39111
Monmouth Memorial Hospital $^{+1-3-4}$ 3rd and Pavilion Aves., Long Branch	NPAssn	270	7,467	Req	39	12	No	100	8 Rotating General	39211
Mountainside Hospital $^{+1-3-4}$ Bay and Highland Aves., Montclair	NPAssn	312	9,393	Req	48	12	No	100	10 Rotating General	39311
All Souls Hospital $^{1-3}$ 95 Mt. Kemble Ave., Morristown	Church	134	4,592	Req	40	12	No	125	4 Rotating General	90711
Morristown Memorial Hospital $^{1-3}$ 100 Madison Ave., Morristown	NPAssn	236	4,831	Req	41	12	No	110	6 Rotating General	39411
Fitkin Memorial Hospital $^{+1-3}$ Corlies Ave., Neptune	NPAssn	236	8,617	Req	34	12	No	150	8 Rotating General	39511
Hospital of St. Barnabas and for Women and Children $^{+1-3}$ 685 High St., Newark 2	Church	255	8,540	Req	37	12	No	75	8 Rotating General	39611
Newark Beth Israel Hospital $^{+3-4}$ 201 Lyons Ave., Newark 8	NPAssn	365	15,303	None	40	12	No	50	12 Rotating General	39711
Newark City Hospital $^{+1-3-4}$ 116 Fairmount Ave., Newark 7	City	700	13,636	Req	27	12	No	60	18 Rotating General	39811
Presbyterian Hospital $^{+1-3}$ 27 S. 9th St., Newark 7	NPAssn	275	9,986	Req	26	12	(209)	100	4 Rotating General	37211
St. Michael's Hospital $^{+1-3}$ 306 High St., Newark 2	Church	405	13,188	Req	36	12	No	85	8 Rotating General	39911
St. Peter's General Hospital $^{+1-3}$ 260 Easton Ave., New Brunswick	Church	188	8,238	Req	36	12	No	135	10 Rotating General	40011
Orange Memorial Hospital $^{+1-3}$ 188 S. Essex Ave., Orange	NPAssn	286	9,781	Req	47	12	No	75	10 Rotating General	40111
Bergen Pines County Hospital $^{+1-3}$ E. Ridgewood Ave., Paramus	County	684	1,042	Req	37	12	(207)	100	20 Rotating General	90811
Passaic General Hospital $^{+1-3}$ 350 Boulevard, Passaic	NPAssn	234	8,311	Req	36	12	No	75	5 Rotating General	40211
St. Mary's Hospital $^{1-3}$ 211 Pennington Ave., Passaic	Church	192	6,557	Req	30	12	No	75	4 Rotating General	40311
Barnert Memorial Hospital $^{1-3}$ 680 Broadway, Paterson 4	NPAssn	141	5,873	Req	32	12	No	100	6 Rotating General	40411
Paterson General Hospital $^{+1-3}$ 528 Market St., Paterson 3	NPAssn	372	10,440	Req	31	12	No	75	6 Rotating General	40511
St. Joseph Hospital $^{+1-3}$ 703 Main St., Paterson 3	Church	366	9,918	None	32	12	No	100	12 Rotating General	40611

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
NEW JERSEY—Continued										
Perth Amboy General Hospital ^{3} 530 New Brunswick Ave., Perth Amboy	NPAssn	276	11,291	None	26	12	No	100	8 Rotating General	87311
Muhlenberg Hospital +$^{1-3-4}$ Park Ave. and Randolph Rd., Plainfield	NPAssn	270	11,995	Req	31	12	No	100	10 Rotating General	40711
Overlook Hospital $^{1-3}$ 193 Morris Ave., Summit	NPAssn	162	5,277	Req	40	12	(217)	100	7 Rotating General	40811
Holy Name Hospital +$^{1-3}$ 718 Teaneck Rd., Teaneck	NPAssn	235	7,785	Req	52	12	No	100	5 Rotating General 1 Rot. (Surg.-Major)	40911 40913
Mercer Hospital +$^{1-3}$ 446 Bellevue Ave., Trenton 8	NPAssn	246	9,282	Req	41	12	No	150	6 Rotating General	41011
St. Francis Hospital +$^{1-3}$ 601 Hamilton Ave., Trenton 9	Church	292	9,351	Req	49	12	No	150	10 Rotating General	41111
William McKinley Memorial Hospital $^{1-3}$ 750 Brunswick Ave., Trenton 8	NPAssn	150	5,897	Req	30	12	No	180	5 Rotating General	41211
North Hudson Hospital $^{1-3-4}$ 4300 Park Ave., Weehawken	NPAssn	150	3,828	Req	24	12	(208)	100	6 Rotating General	41311
NEW YORK—Hospitals, 99; Internships, 1,503										
Albany Hospital +$^{1-3,-4}$-X48 New Scotland Ave., Albany 8	NPAssn	673	17,484	Req	60	12	No	110	18 Rotating General 9 Mixed, 6 Mo. Med. 6 Mo. Surg. 5 Straight Medicine 5 Straight Surgery	41416 41424 41432 41433
Memorial Hospital $^{1-3}$ 161 N. Pearl St., Albany	NPAssn	137	3,593	Req	34	12	No	150	5 Rotating General	41511
St. Peter's Hospital +$^{1-3}$ 600 New Scotland Ave., Albany 8	Church	275	7,680	Req	29	12	(210)	200	8 Rotating General	41611
Binghamton City Hospital +$^{1-3}$ Mitchell and Park Aves., Binghamton	City	464	11,272	None	46	12	No	150	9 Rotating General	41811
Beth-El Hospital +$^{1-3}$ Linden Blvd. and Rockaway Pkwy., Brooklyn 12	NPAssn	340	7,706	Req	54	12	No	100	14 Rotating General	41911
Brooklyn Hospital +$^{1-3}$-X54 DeKalb Ave. and Ashland Pl., Brooklyn 1	NPAssn	362	9,514	Req	46	12	No	50	12 Rotating General	42011
Coney Island Hospital +$^{1-3-4}$ Ocean Pkwy. and Avenue Z, Brooklyn 35	City	286	6,729	Req	26	12	No	65	14 Rotating General	42211
Cumberland Hospital +$^{1-3-4}$-x54 39 Auburn Pl., Brooklyn 5	City	287	7,777	Req	24	12	(211)	65	6 Rotating General 2 Straight Medicine 2 Straight Surgery 2 Straight Ped.	42311 42332 42333 42334
Greenpoint Hospital +$^{1-3-4}$-x54 Kingsland and Skillman Ave., Brooklyn 11	City	281	6,925	Req	22	12	No	65	12 Rotating General	42411
Jewish Hospital +$^{1-3-4}$-X54 555 Prospect Pl., Brooklyn 38	NPAssn	501	16,560	Req	43	12	No	35	35 Rotating General	42511
Kings County Hospital Center +$^{1-3-4}$-X54 Clarkson Ave., Brooklyn 3	City	3,225	56,899	Req	24	12	No	65	85 Rotating General 24 Straight Medicine 10 Straight Surgery 3 Straight Ped.	42611 42632 42633 42634
Long Island College Hospital +$^{1-3}$-X54 340 Henry St., Brooklyn 1	NPAssn	414	11,166	Req	29	12	No	50	16 Rotating General 2 Straight Medicine 2 Straight Surgery 2 Straight Ped.	42711 42732 42733 42734
Maimonides Hospital +$^{1-3}$-X54 4802 Tenth Ave., Brooklyn 19	NPAssn	431	11,704	Req	35	12	No	35	24 Rotating General 4 Straight Medicine	42811 42832
Methodist Hospital +$^{1-3}$-x54 6th St. and 7th Ave., Brooklyn 15	Church	458	10,959	Req	32	12-24	No	50	10 Rotating General 2 Straight Medicine	42911 42932
Norwegian Lutheran Deaconesses' Home and Hospital +$^{1-3}$ 4520 Fourth Ave., Brooklyn 20	Church	210	8,294	Req	54	12	No	50	6 Rotating General	43011
Prospect Heights Hospital $^{1-3}$ 775 Washington Ave., Brooklyn 32	NPAssn	166	6,066	Req	22	12	No	100	4 Rotating General	87411
St. Catherine's Hospital +$^{1-3}$ 133 Bushwick Ave., Brooklyn 6	Church	287	7,282	Req	38	12	No	125	10 Rotating General	43111
St. John's Episcopal Hospital +$^{1-3}$ 480 Herkimer St., Brooklyn 13	Church	251	7,332	Req	32	12	No	90	9 Rotating General 1 Straight Medicine 3 Straight Surgery	43211 43232 43233
St. Mary's Hospital +$^{1-3-4}$ 1298 St. Marks Ave., Brooklyn 13	Church	237	5,908	Req	32	12	No	100	8 Rotating General	43311
Unity Hospital +$^{1-3}$ 1545 St. Johns Pl., Brooklyn 13	NPAssn	226	7,185	Req	25	12	No	100	8 Rotating General	43411
Wyckoff Heights Hospital +$^{1-3}$ 374 Stockholm St., Brooklyn 37	NPAssn	251	8,845	Req	24	12	No	100	8 Rotating General	43511
Buffalo General Hospital +$^{1-3-4}$-X49 100 High St., Buffalo 3	NPAssn	601	14,047	None	51	12	(212)	100	17 Rotating General 3 Straight Medicine 1 Straight Surgery	43611 43632 43633
Deaconess Hospital +$^{1-3}$ 563 Riley St., Buffalo 8	NPAssn	277	10,095	Req	31	12	(213)	150	4 Rotating General	43722
Edward J. Meyer Memorial Hospital +$^{1-4}$-X49 462 Grider St., Buffalo 15	County	983	10,298	Req	41	12	No	170	24 Rotating General	43811
Mercy Hospital $^{1-3}$ 565 Abbott Rd., Buffalo 20	Church	360	11,854	Req	29	12	(126)	200	12 Rotating General	43911
Millard Fillmore Hospital +$^{1-3-4}$-x49 875 Lafayette Ave., Buffalo 9	NPAssn	473	18,480	None	44	12	(212)	230	12 Rotating General	44011
Sisters of Charity Hospital $^{1-3}$ 2157 Main St., Buffalo 14	Church	631	19,933	Req	29	12	(214)	200	12 Rotating General	44111
Mary Imogene Bassett Hospital +$^{1-3}$-x48-X50 Atwell Rd., Cooperstown	NPAssn	110	3,068	Req	69	12	No	50	2 Rotating General 3 Mix. Med. Surg. 1 Straight Medicine	44211 44224 44232
Arnot-Ogden Memorial Hospital $^{1-3}$ Roe Ave., Elmira	NPAssn	200	7,273	None	38	12	(215)	175	4 Rotating General	44311
St. Joseph's Hospital $^{1-3}$ 555 E. Market St., Elmira	Church	229	7,395	None	33	12	No	200	4 Rotating General	44411
Flushing Hospital and Dispensary +$^{1-3-4}$ 44-14 Parsons Blvd., Flushing 55	NPAssn	287	12,414	Req	41	12	No	125	11 Rotating General	44511
North Country Community Hospital $^{1-3}$ St. Andrews Lane, Glen Cove	NPAssn	154	5,413	Req	36	12	No	250	4 Rotating General	44611
Glens Falls Hospital $^{1-3}$ 100 Park St., Glens Falls	NPAssn	226	10,121	Req	24	12	No	200	6 Rotating General	44711
Meadowbrook Hospital +$^{1-3-4}$ Bethpage Tpke. and Carman Ave., Hempstead	County	600	10,011	Req	41	12	No	125	30 Rotating General	44811
Jamaica Hospital +$^{1-3}$ 89 Avenue and VanWyck Expwy., Jamaica 32	NPAssn	264	6,540	Req	25	12	No	100	10 Rotating General (Men Only) 2 Rotating General (Women Only)	44911 44920

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
NEW YORK—Continued										
Mary Immaculate Hospital $^{+1-3-4}$ 152-11 89th Ave., Jamaica 32	NPAssn	295	9,078	None	31	12	No	90	4 Rotating General 1 Straight Medicine 1 Straight Surgery 1 Straight Ped.	45011 45032 45033 45034
Queens General Hospital $^{+1-3-4}$-x52 82-68 164th St., Jamaica 32	City	690	13,067	Req	40	12	No	65	38 Rotating General 2 Straight Surgery	45111 45133
Charles S. Wilson Memorial Hospital $^{+1-3}$ 33-57 Harrison St., Johnson City	NPAssn	450	11,670	Req	42	12	No	150	12 Rotating General 2 Straight Medicine 2 Straight Surgery 2 Straight Ped.	45211 45232 45233 45234
Our Lady of Victory Hospital $^{+3}$ 800 Ridge Rd., Lackawanna 18	Church	260	8,421	Req	22	12-24	No	150	5 Rotating General	45311
St John's Long Island City Hospital $^{+1-3-4}$ 2501 Jackson Ave., Long Island 1	Church	224	5,801	Req	36	12	No	100	16 Rotating General	45411
Nassau Hospital $^{+1-3}$ Second St., Mineola	NPAssn	260	15,209	Req	31	12	No	75	4 Rotating General	45511
Northern Westchester Hospital $^{1-3}$ E. Main St., Mount Kisco	NPAssn	137	4,591	Req	46	12	No	100	4 Rotating General	45611
Mount Vernon Hospital $^{+3}$ N. Seventh Ave., Mount Vernon	NPAssn	219	8,805	None	39	12	No	75	6 Rotating General 1 Straight Surgery	45711 45733
St. Luke's Hospital $^{1-3-4}$ 70 Dubois St., Newburgh	NPAssn	192	6,514	Req	22	12	No	150	6 Rotating General	45811
New Rochelle Hospital $^{+3-4}$ 16 Guion Pl., New Rochelle	NPAssn	302	11,077	Req	42	12	No	100	8 Rotating General	45911
Bellevue Hospital Center -X50-51-53 28th St. and First Ave., New York 16	City	2,881	48,696	....	31	..	...	...	....	.....
First Medical Division— Columbia University $^{+1-3}$ Dr. Dickinson Richards	....	...	.....	Req	..	12	No	60	4 Mixed Med. Surg. Chest 4 Mixed Med. Path. Chest 4 Mixed Med. Chest	46005 46006 46028
First Surgical Division— Columbia University $^{+1-3}$ Dr. Frank Berry	....	...	.....	Req	..	12	No	60	4 Rot. (Surg.-Major) 2 Straight Surgery	46113 46133
Second Medical Division— Cornell University $^{+1-3}$ Dr. Hugh Luckey	....	...	.....	Req	..	12	No	65	2 Mixed Med. Path. 16 Straight Medicine	46227 46232
Second Surgical Division— Cornell University $^{+1-3}$ Dr. Cranston Holman	....	...	.....	Req	..	12	No	65	7 Straight Surgery	46333
Third Medical Division—New York University College of Medicine $^{+1-3}$ Dr. William Tillett—Medicine Dr. L. Emmett Holt, Jr.—Pediatrics	....	...	.....	Req	..	12	(221)	65	2 Mixed Med. Chest 12 Straight Medicine 17 Straight Ped.	46428 46432 46434
Third Surgical Division—New York University College of Medicine $^{+1-3}$ Dr. John Mulholland	....	...	.....	Req	..	12	(245)	65	8 Mixed Med. Surg. 6 Straight Surgery	46424 46433
Fourth Medical Division— New York University Post-Graduate Medical School $^{+1-3-4}$ Dr. Charles Wilkinson	....	...	....	Req	..	12	(295)	65	10 Straight Medicine	46632
Fourth Surgical Division— New York University Post-Graduate Medical School $^{+1-3-4}$ Dr. William Hinton	....	...	.....	Req	..	12	(295)	65	10 Straight Surgery	46633
Beth David Hospital $^{+1-3}$ 161 E. 90th St., New York 28	NPAssn	167	5,293	None	29	12	No	65	14 Rotating General	46911
Beth Israel Hospital $^{+1-3-4}$-x53 Stuyvesant Square East, New York 3	NPAssn	358	9,931	Req	41	12	No	35	14 Rotating General	47011
Bronx Hospital $^{+1-3-4}$ 1276 Fulton Ave., New York 56	NPAssn	329	9,314	Req	24	12	No	35	9 Rotating General	47111
Columbus Hospital ^{3} 227 E. 19th St., New York 3	Church	260	5,765	None	10	12	No	75	12 Rotating General	47211
Fordham Hospital $^{+1-3-4}$ Southern Blvd. and Crotona Ave., New York 58	City	414	10,803	Req	26	12	No	65	17 Rotating General	47411
French Hospital $^{+1-3}$ 330 W. 30th St., New York 1	NPAssn	253	6,650	Req	27	12	No	50	12 Rotating General	47511
Harlem Hospital $^{+1-3-4}$ 530 Lenox Ave., New York 37	City	704	17,866	Req	14	12	No	65	42 Rotating General	47811
Hospital for Joint Diseases $^{+1-3-4}$ 1919 Madison Ave., New York 35	NPAssn	302	5,167	Req	26	12	(218)	35	9 Rotating General	47911
Jewish Memorial Hospital $^{+1-3-4}$ 196th St. and Broadway, New York 34	NPAssn	185	6,178	Req	28	12	No	75	10 Rotating General	48011
Knickerbocker Hospital $^{+1-3}$ 70 Convent Ave., New York 27	NPAssn	194	5,071	Req	35	12	(219)	100	6 Rotating General 3 Straight Medicine 3 Straight Surgery	48111 48132 48133
Lebanon Hospital $^{+1-3}$ 1650 Grand Concourse, New York 57	NPAssn	214	6,735	None	21	12	No	50	6 Rotating General 1 Straight Medicine 1 Straight Surgery	48211 48232 48233
Lenox Hill Hospital $^{+1-3}$-x53 111 E. 76th St., New York 21	NPAssn	530	13,197	Req	38	12	No	...	20 Rotating General	48311
Metropolitan Hospital $^{+1-3-4}$-X52 Welfare Island, New York 17	City	1,060	13,725	Req	29	12	No	65	6 Rotating General	48511
Misericordia Hospital $^{+1-3}$ 531 East 86th St., New York 28	Church	190	5,757	Req	20	12	No	50	1 Rot. (Med.-Major) 4 Rot. (Surg.-Major) 1 Rot. (Ped.-Major) 2 Rot. (Ob.-Gyn.-Major)	48612 48613 48614 48615
Montefiore Hospital $^{+1-3-4}$-X50 100 E. Gun Hill Rd., New York 67	NPAssn	636	5,321	None	50	12	No	30	20 Mixed Med. Surg. Neur. Pul. Neo.	48785
Morrisania City Hospital $^{+1-3-4}$-x52 168th St. and Gerard Ave., New York 52	City	471	11,491	Req	19	12	No	65	16 Rotating General	48811
Mount Sinai Hospital $^{+1-4}$-x50 One E. 100th St., New York 29	NPAssn	957	15,318	Req	48	12	No	25	30 Rotating General 6 Straight Surgery	49011 49033
New York City Hospital $^{+1-3-4}$-x52 Welfare Island, New York 17	City	837	12,505	Req	22	12	No	65	24 Rotating General	49111
New York Hospital $^{+1-3-4}$-X51 525 E. 68th St., New York 21	NPAssn	1,188	25,869	Req	64	12	No	...	15 Straight Medicine 15 Straight Surgery 2 Straight Ped.	49232 49233 49234
New York Polyclinic Medical School and Hospital $^{+1-3-4}$ 345 W. 50th St., New York 19	NPAssn	394	9,679	Req	49	12	No	75	8 Rotating General	49411
New York University-Bellevue Medical Center (See also Bellevue Hospital Center) University Hospital $^{+1-3}$-x53 303 East 20th St., New York 3	NPAssn	287	9,779	Req	37	12	(217)	50	4 Straight Medicine	91232
Presbyterian Hospital $^{+1-3-4}$-X50 622 W. 168th St., New York 32	NPAssn	1,523	35,151	Req	62	12	No	167	12 Straight Medicine 12 Straight Surgery	49532 49533

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
NEW YORK—Continued										
Roosevelt Hospital $^{+1-4}$-X50 428 W. 59th St., New York 19	NPAssn	403	9,239	Req	35	12	No	83	6 Mix. Med. Ped. Surg. 6 Mix. Surg. Gyn. Med.	49623 49672
St. Clare's Hospital $^{+1-3-4}$ 415 W. 51st St., New York 19	Church	421	10,313	Req	27	12	No	25	13 Rotating General 1 Straight Medicine 1 Straight Surgery	49711 49732 49733
St. Francis Hospital $^{+1-3}$ 525 E. 142d St., New York 54	Church	360	7,672	Req	23	12	No	100	12 Rotating General	49811
St. Luke's Hospital $^{+1-4}$-X50 421 W. 113th St., New York 25	NPAssn	538	10,339	Req	50	12	No	25	8 Mixed, 9 Mo. Med., 3 Mo. Surg. 6 Mixed Surg., Med.	49983 49984
St. Vincent's Hospital $^{+1-3}$-x53 153 W. 11th St., New York 11	Church	593	13,590	Req	43	12	No	35	19 Rotating General 2 Straight Medicine 6 Straight Surgery	50011 50032 50033
Sydenham Hospital $^{+1-3-4}$ 565 Manhattan Ave., New York 27	City	220	6,080	None	28	12	No	65	9 Rotating General	50111
Mt. St. Mary's Hospital 515 Sixth St., Niagara Falls	Church	200	7,367	None	33	12	No	250	6 Rotating General	50311
United Hospital $^{+1-3}$ Boston Post Rd., Port Chester	NPAssn	180	6,268	Req	38	12	No	200	8 Rotating General	50411
St. Francis Hospital $^{1-3}$ Hillcrest, Poughkeepsie	Church	176	5,323	Req	44	12	No	200	4 Rotating General	50511
Vassar Brothers Hospital $^{+1-3}$ Reade Pl., Poughkeepsie	NPAssn	204	7,864	None	27	12	(217)	125	6 Rotating General	50611
Genesee Hospital $^{+1-3}$-x55 224 Alexander St., Rochester 7	NPAssn	222	8,879	Req	70	12	(223)	50	12 Rotating General 2 Straight Surgery	50711 50733
Highland Hospital $^{+1-3}$-x55 South Ave. and Bellevue Dr., Rochester 20	NPAssn	207	8,129	Req	57	12	(223)	75	8 Rotating General	50811
Park Avenue Hospital $^{1-3}$ 789 Park Ave., Rochester 7	NPAssn	100	4,021	None	50	12	No	...	4 Rotating General	87611
Rochester General Hospital $^{+1-3-4}$-x55 501 Main St., W., Rochester 8	NPAssn	332	13,287	Req	64	12	(216)	75	20 Rotating General	50911
St. Mary's Hospital $^{+1-3}$-x55 89 Genesee St., Rochester 11	Church	335	13,333	Req	36	12	No	175	15 Rotating General	51011
Strong Memorial-Rochester Municipal Hospitals $^{+1-3-4}$-X55 Crittenden Blvd., Rochester 20	NPAssn	734	17,363	Req	76	24	(222)	15	12 Rotating General 12 Mix. Surg. Ob.-Gyn. 11 Straight Medicine 4 Straight Ped.	51111 51122 51132 51134
Ellis Hospital $^{+1}$-X48 1101 Nott St., Schenectady 8	NPAssn	359	12,867	Req	44	12	No	100	10 Rotating General	51211
St. Clare's Hospital $^{1-3}$ 600 McClellan St., Schenectady 4	Church	175	7,343	Req	37	12	(224)	150	5 Rotating General	51311
St. Vincent's Hospital $^{+1-3}$ 335 Bard Ave., Staten Island 10	Church	242	8,571	Req	28	12	No	100	8 Rotating General	51411
Staten Island Hospital $^{+1-3}$ 101 Castleton Ave., Staten Island 1	NPAssn	222	7,321	Req	54	12	No	100	8 Rotating General	51511
General Hospital $^{+1-3}$ 116 E. Castle St., Syracuse 5	NPAssn	129	5,360	Req	31	12	No	167	4 Mix. Med. Surg. Ob.-Gyn.	51722
St. Joseph's Hospital $^{+1-3}$-x56 301 Prospect Ave., Syracuse 3	Church	290	10,870	Req	27	12	No	160	10 Rotating General	51811
State University of New York Med. Center $^{+1-3}$-X56 766 Irving Ave., Syracuse 10 Walter S. Wiggins, M.D., Assistant Dean, Graduate and Post Graduate Medical Education	State	836	26,986	Req	43	12	(225)	167	20 Rotating General 4 Straight Medicine	51611 51632
St. Mary's Hospital $^{1-3}$ 87 Oakwood Ave., Troy	Church	250	6,880	Req	21	12	(225)	167	20 Rotating General	51911
Samaritan Hospital $^{+1-3}$ Peoples and Burdett Aves., Troy	NPAssn	162	5,750	Req	39	12	No	200	8 Rotating General	52011
Grasslands Hospital $^{+1-3-4}$ Valhalla	County	800	4,268	Req	55	12	No	75	20 Rotating General	52111
St. Agnes Hospital ^{3} North St., White Plains	Church	153	4,337	Req	34	12	No	150	4 Rotating General	52211
White Plains Hospital $^{+1-3}$ 41 E. Post Rd., White Plains	NPAssn	200	6,632	Req	44	12	No	100	5 Rotating General	52311
St. John's Riverside Hospital $^{+1-3}$ Ashburton and Palisade Aves., Yonkers 2	NPAssn	214	6,501	Req	29	12	No	100	8 Rotating General	52411
St. Joseph's Hospital $^{1-3}$-x56 127 S. Broadway, Yonkers 2	Church	180	3,847	Req	34	12	No	100	8 Rotating General	52511
Yonkers General Hospital $^{1-3}$ 127 Ashburton Ave., Yonkers 2	NPAssn	141	5,406	Req	22	12	No	100	7 Rotating General	52611
NORTH CAROLINA—Hospitals, 12; Internships, 186										
North Carolina Memorial Hospital $^{+1-3}$-X57 Univ. of North Carolina, Chapel Hill	State	411	1,564	Req	60	12	No	125	16 Rotating General 6 Straight Medicine 4 Straight Surgery 2 Straight Ped.	90011 90032 90033 90034
Charlotte Memorial Hospital $^{+1-3-4}$ 1400 Scott Ave., Charlotte 3	NPAssn	332	11,645	Req	57	12	No	100	10 Rotating General	52711
Mercy Hospital $^{1-3}$ 2000 E. Fifth St., Charlotte 4	Church	245	9,991	Req	40	12	No	100	6 Rotating General	52811
Duke Hospital $^{+1-3-4}$-X58 Durham	NPAssn	543	15,964	Req	56	12	(226)	25	4 Mixed Ob. Ped. 26 Straight Medicine 17 Straight Surgery 9 Straight Ped.	52988 52932 52933 52934
Lincoln Hospital $^{+1-3}$-x58 1301 Fayetteville St., Durham 5	NPAssn	99	2,850	Req	30	12	No	100	4 Rotating General	53011
Watts Hospital $^{+1}$-x57-58 Broad St. and Club Blvd., Durham	NPAssn	229	9,248	Req	36	12	No	100	7 Rotating General 2 Straight Medicine 2 Straight Surgery	87711 87732 87733
Rex Hospital $^{+1-3}$ 1311 St. Mary's St., Raleigh	NPAssn	308	12,355	Req	25	12	No	100	15 Rotating General	53211
St. Agnes Hospital $^{1-3}$ Oakwood Ave., Raleigh	Church	100	2,644	Req	24	12	No	175	4 Rotating General	53311
James Walker Memorial Hospital $^{+1-3}$ N. Tenth St., Wilmington	NPAssn	250	9,604	None	21	12	No	100	4 Rotating General 2 Mix. Ob.-Gyn. Ped. Surg.	53411 53425
City Memorial Hospital $^{+1-3-4}$ Hospital St., Winston-Salem 4	City	296	10,885	Req	45	12	No	150	20 Rotating General	53511
Kate Bitting Reynolds Memorial Hospital $^{+3}$ 1101 E. Seventh St., Winston-Salem	City	200	5,879	Req	25	12	No	150	10 Rotating General	53611
North Carolina Baptist Hospital $^{+1-3}$-X59 300 S. Hawthorne Rd., Winston-Salem 7	Church	260	9,381	Req	93	12	No	...	4 Mix. Ob.-Gyn. Ped. 5 Straight Medicine 5 Straight Surgery 2 Straight Ped.	53708 53732 53733 53734

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
NORTH DAKOTA—Hospitals, 3; Internships, 12										
St. John's Hospital $^{1-3}$ 365 Sixth Ave., S., Fargo	Church	173	5,990	Req	23	12	No	150	4 Rotating General	87011
St. Luke's Hospital $^{+}$ 727 Broadway, Fargo	Church	144	6,963	Req	52	12	No	150	4 Rotating General	53911
Grand Forks Deaconess Hospital 222 S. 4th St., Grand Forks	NPAssn	164	5,547	None	49	12	No	175	4 Rotating General	54011
OHIO—Hospitals, 48; Internships, 649										
City Hospital $^{+1-3}$ 525 E. Market St., Akron 4	NPAssn	410	17,754	Req	33	12	(227)	200	22 Rotating General	54111
Peoples Hospital $^{+1-3}$ 256-270 W. Cedar St., Akron 7	NPAssn	221	13,526	Req	41	12	(227)	200	12 Rotating General	54211
St. Thomas Hospital $^{+1-3}$ 444 N. Main St., Akron 10	Church	205	9,439	Req	47	12	No	200	5 Rotating General	54311
Aultman Hospital $^{+1-3}$ 625 Clarendon Ave., S. W., Canton 10	NPAssn	301	10,954	Req	50	12	No	200	10 Rotating General	54411
Mercy Hospital $^{+1-3}$ Market and 8th Sts., N. W., Canton 2	Church	305	12,359	Req	37	12	No	125	8 Rotating General	54511
Bethesda Hospital $^{+1-3}$ Oak St. and Reading Rd., Cincinnati 6	Church	220	9,302	Req	54	12	(228)	150	8 Rotating General 2 Mixed Med. Ob.-Gyn. Surg.	54611 54622
Christ Hospital $^{+1}$ 2139 Auburn Ave., Cincinnati 19	Church	356	11,744	Req	41	12	(228)	150	13 Rotating General	54711
Cincinnati General Hospital $^{+1-4}$-X60 3231 Burnet Ave., Cincinnati 29	City	810	14,747	Req	53	12	(230)	15	52 Rotating General	54811
Deaconess Hospital $^{+1-3}$ Clifton Ave. and Straight St., Cincinnati 20	Church	168	6,388	Req	27	12	No	125	6 Rotating General	54911
Good Samaritan Hospital $^{+1-3}$ 3217 Clifton Ave., Cincinnati 20	Church	559	17,973	None	37	12	No	150	16 Rotating General	55011
Jewish Hospital $^{+1-3}$ Burnet Ave., Cincinnati 29	NPAssn	261	11,746	Req	53	12	(229)	125	15 Rotating General	55111
St. Mary's Hospital $^{+1-3}$ 816 Betts St., Cincinnati 14	Church	214	6,705	Req	24	12	No	200	11 Rotating General	55211
City Hospital $^{+1-3-4}$-X61 3395 Scranton Rd., Cleveland 9	City	1,034	9,893	Req	43	12	No	109	26 Rotating General	55311
Evangelical Deaconess Hospital $^{1-3}$ 4229 Pearl Rd., Cleveland 9	Church	138	8,177	None	25	12	No	100	6 Rotating General	90911
Fairview Park Hospital $^{+1-3}$ 3305 Franklin Blvd., Cleveland 13	Church	150	7,669	Req	36	12	No	100	6 Rotating General	55411
Lutheran Hospital $^{+1-3}$ 2609 Franklin Blvd., Cleveland 13	Church	189	7,554	None	46	12	(231)	150	12 Rotating General	55611
Mount Sinai Hospital $^{+1-3-4}$-X61 1800 E. 105th St., Cleveland 6	NPAssn	350	14,210	Req	44	12	No	200	17 Rotating General	55711
St. Alexis Hospital $^{+1-3}$ 5163 Broadway Ave., Cleveland 27	Church	234	10,526	None	35	12	No	250	6 Rotating General	55811
St. John's Hospital $^{+1-3}$ 7911 Detroit Ave., Cleveland 2	Church	236	9,047	None	32	12	No	150	7 Rotating General	55911
St. Luke's Hospital $^{+1-3-4}$ 11311 Shaker Blvd., Cleveland 1	Church	437	20,485	Req	52	12	No	75	27 Rotating General	56011
St. Vincent Charity Hospital $^{+1-3}$-X61 E. 22d and Central Ave., Cleveland 15	Church	300	6,953	Req	20	12	(232)	200	18 Rotating General	56111
University Hospitals $^{+1-3-4}$-X61 2065 Adelbert Rd., Cleveland 6	NPAssn	822	23,653	Req	60	12	No	...	16 Rotating General 12 Straight Medicine 8 Straight Surgery 2 Straight Ped.	56211 56232 56233 56234
Doctors Hospital $^{+1-3}$ 12345 Cedar Rd., Cleveland Heights 6	NPAssn	185	7,478	None	50	12	No	100	12 Rotating General	56311
Grant Hospital $^{+1-3}$ 125 S. Grant Ave., Columbus 15	NPAssn	265	10,841	None	28	12	(233)	200	12 Rotating General	56411
Mount Carmel Hospital $^{+1}$ 793 W. State St., Columbus 8	Church	360	13,216	None	31	12	(233)	200	15 Rotating General	56511
University Hospitals University Hospital $^{+1-3}$-X62 10th and Perry St., Columbus 1	State	600	12,475	Req	71	12	(235)	125	48 Rotating General	56611
White Cross Hospital $^{+1-3\ 4}$ 700 N. Park St., Columbus 8	Church	350	13,172	Req	34	12	No	325	15 Rotating General	56711
Good Samaritan Hospital $^{+1-3}$ 1425 W. Fairview Ave., Dayton 6	Church	310	14,137	Req	37	12	No	200	6 Rotating General	56811
Miami Valley Hospital $^{+1-3-4}$ 134 Apple St., Dayton 9	NPAssn	422	17,486	Req	41	12	No	185	16 Rotating General	56911
St. Elizabeth Hospital $^{+1-3}$ 49 Hopeland St., Dayton 8	Church	325	12,884	Req	34	12	No	125	16 Rotating General	57011
Huron Road Hospital $^{+1-3}$ 13951 Terrace Rd., East Cleveland 12	NPAssn	284	11,274	Req	53	12	No	200	8 Rotating General	57111
Elyria Memorial Hospital $^{+1-3}$ 630 E. River St., Elyria	NPAssn	162	6,053	Req	39	12	No	150	4 Rotating General	90111
Euclid-Glenville Hospital $^{+1-3}$ E. 185th St. and Lake Erie, Euclid 19	NPAssn	172	3,861	None	31	12	No	100	6 Rotating General	55511
Marymount Hospital $^{+1-3}$ 12300 McCracken Rd., Garfield Heights 25	Church	190	7,603	Req	48	12	(231)	200	10 Rotating General	57211
Mercy Hospital $^{+1-3}$ 116 Dayton, Hamilton	Church	300	11,601	Req	38	12	No	150	6 Rotating General	57311
Lakewood Hospital $^{+1-3}$ 14519 Detroit Ave., Lakewood 7	City	208	8,629	Req	45	12	No	100	6 Rotating General	57411
Lima Memorial Hospital $^{+1-3}$ Linden and Mobel Sts., Lima	NPAssn	256	9,743	Req	31	12	No	250	8 Rotating General	57511
St. Rita's Hospital $^{+1-3}$ 801 W. High St., Lima	Church	281	10,464	Req	55	12	(236)	175	10 Rotating General	57611
Mercy Hospital $^{1-3}$ 1343 N. Fountain Blvd., Springfield	Church	247	8,010	Req	42	12	No	175	8 Rotating General	87811

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
OHIO—Continued										
Springfield City Hospital +^{1} High St. at Burnett Rd., Springfield	City	215	8,236	Req	.44	12	No	175	8 Rotating General	57711
Flower Hospital $^{1-3}$ 3349 Cherry St., Toledo 12	Church	163	6,921	Req	39	12	(234)	200	5 Rotating General	57811
Maumee Valley Hospital +$^{1-3}$ 2025 Arlington Ave., Toledo 9	County	292	3,472	Req	57	12	No	200	8 Rotating General	57911
Mercy Hospital +$^{1-3}$ 2221 Madison Ave., Toledo 2	Church	282	12,010	Req	48	12	No	100	14 Rotating General	58011
Riverside Hospital 1609 Summit St., Toledo 11	NPAssn	166	6,535	Req	35	12	No	200	6 Rotating General	58111
St. Vincent's Hospital +$^{1-3}$ 2213 Cherry St., Toledo 8	Church	450	14,914	Req	40	12	(237)	200	15 Rotating General	58211
Toledo Hospital +$^{1-3}$ 2142 N. Cove Blvd., Toledo 6	NPAssn	276	10,499	Req	67	12	No	200	10 Rotating General	58311
St. Elizabeth Hospital +$^{1-3}$ 1044 Belmont Ave., Youngstown 4	Church	340	14,239	Req	33	12	No	175	10 Rotating General	58411
Youngstown Hospital +$^{1-3-4}$ Oak Hill and Francis St., Youngstown 1 Gypsy Lane and Goleta Ave., Youngstown 4	NPAssn	600	25,159	Req	62	12	No	100	24 Rotating General	58511
OKLAHOMA—Hospitals, 6; Internships, 85										
Mercy Hospital Oklahoma City General $^{1-3}$ 501 N. W. 12th St., Oklahoma City 3	Church	147	7,145	Req	55	12	(239)	75	8 Rotating General	58611
St. Anthony Hospital +-x63 601 N. W. 9th St., Oklahoma City 3	Church	375	14,057	Req	27	12	No	75	12 Rotating General	58711
University Hospitals +$^{1-3-4}$-X63 800 N. E. 13th St., Oklahoma City 4	State	444	9,828	Req	49	12-24	(238)	50	20 Rotating General 12 Rotating General ^{6}	58811 58881
Wesley Hospital +^{1} 300 N. W. 12th St., Oklahoma City 3	Part	188	9,833	Req	42	12	(239)	100	8 Rotating General	59011
Hillcrest Medical Center +^{1} 1653 E. 12th St., Tulsa	NPAssn	435	13,851	Req	31	12	No	100	15 Rotating General	59111
St. John's Hospital +$^{1-3}$ 1923 S. Utica, Tulsa	Church	445	18,132	Req	27	12	No	125	10 Rotating General	59211
OREGON—Hospitals, 7; Internships, 90										
Sacred Heart General Hospital ^{1} 751 E. 12th Ave., Eugene	Church	275	11,859	Req	62	12	No	100	8 Rotating General	59311
Emanuel Hospital +$^{1-3}$ 2800 N. Commercial Ave., Portland 12	Church	350	15,113	Req	49	12	(241)	75	14 Rotating General	59411
Good Samaritan Hospital +$^{1-3}$ 1015 N. W. 22d Ave., Portland 10	Church	519	13,549	None	62	12	No	75	16 Rotating General	59511
Portland Sanitarium and Hospital ^{1} 932 S. E. 60th Ave., Portland 15	Church	164	8,495	Req	37	12	No	140	8 Rotating General	59611
Providence Hospital +$^{1-3}$ 700 N. E. 47th St., Portland 13	Church	282	10,328	Req	67	12	(256)	75	12 Rotating General	59711
St. Vincent's Hospital +^{1} 2447 N. W. Westover Rd., Portland 10	Church	372	12,283	Req	47	12	(240)	140	14 Rotating General	59811
University of Oregon Medical School Hospitals and Clinics +$^{1-4}$-X64 3181 S. W. Sam Jackson Park Rd., Portland 1	State	463	8,068	Req	68	12	No	75	18 Rotating General	59911
PENNSYLVANIA—Hospitals, 71; Internships, 788										
Abington Memorial Hospital +$^{1-3-4}$ York and Woodland Rds., Abington	NPAssn	303	9,678	Req	46	12	No	50	12 Rotating General	60011
Allentown Hospital +$^{1-4}$ 17th and Chew Sts., Allentown	NPAssn	434	14,475	Req	44	12	No	200	12 Rotating General	60111
Sacred Heart Hospital +^{1} 4th and Chew Sts., Allentown	Church	390	9,496	Req	42	12	No	150	8 Rotating General	60211
Altoona Hospital $^{1-3}$ 7th St. and Howard Ave., Altoona	NPAssn	336	7,680	Req	26	12	No	200	8 Rotating General	60311
Mercy Hospital $^{1-3}$ 2601 8th Ave., Altoona	NPAssn	171	5,828	Req	24	12	No	200	4 Rotating General	60411
St. Luke's Hospital +$^{1-4}$ 801 Ostrum St., Bethlehem	NPAssn	352	11,226	Req	53	12	No	200	9 Rotating General	60511
Bryn Mawr Hospital +$^{1-3}$ Bryn Mawr Ave., Bryn Mawr	NPAssn	285	8,877	Req	61	12	No	75	12 Rotating General	60611
Chester Hospital $^{1-4}$ 9th and Barclay Sts., Chester	NPAssn	294	9,691	Req	24	12	No	250	8 Rotating General	60711
George F. Geisinger Memorial Hospital +$^{1-3-4}$ Danville	NPAssn	270	10,107	None	50	12	No	50	12 Rotating General	60811
Fitzgerald-Mercy Hospital +$^{1-3}$-x68 Lanedowns Ave. and Baily Rd., Darby	Church	202	7,463	Req	38	12	No	200	8 Rotating General	60911
Easton Hospital +$^{1-3-4}$ 21st and Lehigh Sts., Easton	NPAssn	184	7,387	Req	35	12	No	200	5 Rotating General	61011
Hamot Hospital +$^{1-3}$ 4 E. 2d St., Erie	NPAssn	304	12,549	Req	43	12	No	150	8 Rotating General	61111
St. Vincent's Hospital +$^{1-3}$ 2420 Sassafras St., Erie 6	NPAssn	305	11,157	Req	42	12	No	200	8 Rotating General	61211
Westmoreland Hospital +$^{1-3}$ 532 W. Pittsburgh St., Greensburg	NPAssn	190	7,778	None	41	12	No	250	4 Rotating General	61311
Harrisburg Hospital +$^{1-4}$-X65 Front and Mulberry, Harrisburg	NPAssn	413	12,563	Req	37	12	No	150	15 Rotating General	61411
Harrisburg Polyclinic Hospital + Third and Radnor Sts., Harrisburg	NPAssn	309	9,604	Req	39	12	No	200	12 Rotating General	61511
St. Joseph Hospital Hazleton	Church	250	5,255	None	31	12	No	100	2 Rotating General	87911
Conemaugh Valley Memorial Hospital $^{1-3}$ 1086 Franklin St., Johnstown	NPAssn	367	13,948	Req	21	12	No	200	10 Rotating General	61611

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
PENNSYLVANIA—Continued										
Lancaster General Hospital $^{1-3}$ 525 N. Duke St., Lancaster	NPAssn	450	10,468	Req	41	12	No	175	10 Rotating General	61811
St. Joseph's Hospital +^{1} College and Marietta Ave., Lancaster	Church	232	7,380	Req	55	12	No	175	6 Rotating General	61911
McKeesport Hospital ^{1} 1500 Fifth Ave., McKeesport	NPAssn	275	10,464	Req	27	12	No	200	10 Rotating General	62011
Montgomery Hospital $^{1-3}$ Powell and Fornance Sts., Norristown	NPAssn	187	7,094	Req	39	12	No	175	6 Rotating General	62111
Sacred Heart Hospital ^{1} 1430 DeKalb St., Norristown	Church	107	3,709	Req	48	12	No	250	2 Rotating General	62211
Albert Einstein Medical Center										
Northern Division +$^{1-3-4}$-X67 York and Tabor Rds., Philadelphia 41	NPAssn	432	12,426	Req	45	12	No	75	18 Rotating General	63111
Southern Division +$^{1-3-4}$-X65-x66 5th and Reed Sts., Philadelphia 47	NPAssn	264	8,179	Req	74	12	No	75	12 Rotating General	63711
Chestnut Hill Hospital +$^{1-3}$ 8835 Germantown Ave., Philadelphia 18	NPAssn	127	4,606	Req	28	12	No	200	4 Rotating General	91011
Episcopal Hospital +$^{1-3-4}$-X67 Front St. and Lehigh Ave., Philadelphia 25	Church	495	9,944	Req	51	12	No	100	11 Rotating General	62311
Frankford Hospital +$^{1-3}$-x69 4910 Frankford Ave., Philadelphia 24	NPAssn	147	5,988	Req	76	12	No	250	8 Rotating General	62411
Germantown Dispensary and Hospital +^{1}-x66-69 East Penn and Wister Sts., Philadelphia 44	NPAssn	311	9,664	Req	50	12	No	100	12 Rotating General	62511
Graduate Hospital of the University of Pennsylvania +$^{1-3-4}$ 19th and Lombard Sts., Philadelphia 46	NPAssn	350	8,831	Req	49	12	(275)	42	12 Rotating General	62611
Hahnemann Medical College and Hospital +$^{1-3}$-X65 230 N. Broad St., Philadelphia 2	NPAssn	590	15,055	Req	48	12	No	25	24 Rotating General	62711
Hospital of the University of Pa. +$^{1-3-4}$-X68 3400 Spruce St., Philadelphia 4	NPAssn	705	21,529	Req	76	12	No	42	26 Rotating General	62811
Hospital of the Woman's Medical College of Pennsylvania +$^{1-3}$-X69 3300 Henry Ave., Philadelphia 29	NPAssn	173	5,156	Req	58	12	No	25	6 Rotating General	62911
Jefferson Medical College Hospital +$^{3-4}$-X66 10th and Sansom Sts., Philadelphia 7	NPAssn	786	18,105	Req	41	12	No	25	34 Rotating General	63011
Lankenau Hospital +^{1}-x66 Girard and Corinthian Aves., Philadelphia 30	NPAssn	260	6,876	Req	54	12	No	75	10 Rotating General	63211
Memorial Hospital $^{1-3-4}$ 5800 Ridge Ave., Philadelphia 28	NPAssn	149	4,035	Req	29	12	No	250	4 Rotating General	63311
Mercy-Douglass Hospital +$^{1-3}$ 5000 Woodland Ave., Philadelphia 43	NPAssn	101	2,384	Req	37	12	No	100	5 Rotating General	63411
Methodist Episcopal Hospital +$^{1-3}$-x66 Broad and Wolf Sts., Philadelphia 48	Church	235	5,584	Req	35	12	No	150	6 Rotating General	63511
Misericordia Hospital +^{1}-x69 *54th and Cedar Ave., Philadelphia 43*	Church	270	8,275	Req	25	12	No	200	10 Rotating General	63611
Nazareth Hospital +$^{1-3}$ 8050 Holme Ave., Philadelphia 15	Church	205	8,121	Req	32	12	No	150	6 Rotating General	63811
Pennsylvania Hospital +$^{1-3}$-X66-68 8th and Spruce Sts., Philadelphia 7	NPAssn	430	10,733	Req	60	12	(242)	...	18 Rotating General	63911
Philadelphia General Hospital +$^{1-3-4}$-x65-X66-67-68-69 34th St. and Curie Ave., Philadelphia 4	City	2,776	22,008	Req	50	12	(244)	55	108 Rotating General	64011
Presbyterian Hospital +^{1}-x68 51 N. 39th St., Philadelphia 4	Church	346	7,767	None	57	12	(243)	100	12 Rotating General	64111
St. Agnes Hospital ^{1}-x65 1900 S. Broad St., Philadelphia 45	Church	350	9,421	Req	21	12	No	175	4 Rotating General	64211
St. Joseph's Hospital +$^{1-3-4}$-x66 16th St. and Girard Ave., Philadelphia 30	Church	198	5,307	Req	28	12	No	200	6 Rotating General	64311
St. Luke's and Children's Medical Center +^{1}-x65-66 Franklin and Thompson Sts., Philadelphia 22	NPAssn	238	7,536	Req	35	12	No	125	6 Rotating General	64411
St. Mary's Hospital + Frankford Ave. and Palmer St., Philadelphia 25	Church	234	6,152	Req	25	12	No	200	6 Rotating General	64511
Temple University Hospital +^{1}-X67 3401 N. Broad St., Philadelphia 40	NPAssn	543	16,182	Req	52	12	(246)	25	24 Rotating General	64611
Woman's Hospital +$^{1-3}$-X69 Preston and Parrish Sts., Philadelphia 4	NPAssn	143	5,340	Req	38	12	No	150	2 Rotating General 2 Rot. (Ob.-Gyn.-Major) 1 Straight Medicine	64711 64715 64732
Allegheny General Hospital +$^{1-3}$-X70 320 E. North Ave., Pittsburgh 12	NPAssn	565	13,580	Req	23	12	No	150	16 Rotating General	64811
Montefiore Hospital +$^{1-3}$ 3459 Fifth Ave., Pittsburgh 13	NPAssn	296	9,637	Req	51	12	No	50	12 Rotating General	65011
Pittsburgh Hospital +^{1} 6655 Frankstown Ave., Pittsburgh 6	NPAssn	225	6,802	Req	23	12	No	200	6 Rotating General	65111
Presbyterian Hospital +^{1}-X-70 230 Lothrop St., Pittsburgh 13	NPAssn	235	7,539	Req	39	12	(247)	50	24 Rotating General	65211
St. John's General Hospital ^{1} 3339 McClure Ave., Pittsburgh 12	NPAssn	188	6,954	Req	24	12	No	200	5 Rotating General	65411
St. Joseph's Hospital and Dispensary 2117 Carson St., Pittsburgh 3	Church	170	5,127	Req	31	12	No	250	6 Rotating General	65511
St. Margaret Memorial Hospital +^{1} 265 46th St., Pittsburgh 17	Church	121	3,195	Req	49	12	No	150	4 Rotating General	65611
Western Pennsylvania Hospital +$^{1-3-4}$ 4800 Friendship Ave., Pittsburgh 24	NPAssn	550	16,444	Req	19	12	No	200	18 Rotating General	65911
Community General Hospital +$^{1-3}$ 135 N. 6th St., Reading	NPAssn	123	5,198	Req	46	12	No	175	4 Rotating General	66011
Reading Hospital +$^{1-3}$ 6th and Spruce Sts., Reading	NPAssn	386	11,817	Req	48	12	No	100	16 Rotating General	66111
St. Joseph's Hospital +$^{1-3}$ 1215 Walnut St., Reading	Church	206	6,877	Req	50	12	No	200	6 Rotating General	66211
Robert Packer Hospital +$^{1-3-4}$-X65 S. Wilbur Ave., Sayre	NPAssn	340	11,941	Req	48	12	No	75	12 Rotating General	66411

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
PENNSYLVANIA—Continued										
Scranton State Hospital +[1] 201-205 Mulberry St., Scranton 5	State	290	6,091	Req	26	12	No	166	10 Rotating General	66611
Sewickley Valley Hospital [1] Blackburn Road, Sewickley	NPAssn	153	5,877	Req	23	12	No	275	6 Rotating General	66711
Uniontown Hospital [1-3] 500 W. Berkeley St., Uniontown	NPAssn	265	9,208	Req	36	12	No	300	5 Rotating General	66811
Chester County Hospital +[1-3] Boot Rd., Westchester	NPAssn	153	4,581	Req	43	12	No	150	6 Rotating General	88211
Mercy Hospital +[1] 196 Hanover St., Wilkes-Barre	Church	200	5,567	Req	27	12	No	250	6 Rotating General	67011
Wilkes-Barre General Hospital +[1] Cor. N. River and Auburn Sts., Wilkes-Barre	NPAssn	376	9,494	Req	12	12	No	200	10 Rotating General	67111
Columbia Hospital +[1-3] 312 Penn Ave., Wilkinsburg	Church	191	6,474	Req	35	12	No	200	6 Rotating General	67211
Divine Providence Hospital 1100 Grampian Blvd., Williamsport	Church	185	5,246	Req	38	12	No	200	6 Rotating General	91311
Williamsport Hospital +[1-4] 777 Rural Ave., Williamsport 20	NPAssn	288	8,331	Req	35	12	No	200	8 Rotating General	67311
York Hospital +[1] S. George St. and Rathton Rd., York	NPAssn	338	10,032	Req	30	12	No	200	8 Rotating General	67411
RHODE ISLAND—Hospitals, 4; Internships, 44										
Newport Hospital [1-3] Friendship St., Newport	NPAssn	196	4,870	Req	26	12	No	100	6 Rotating General	67511
Rhode Island Hospital +[1-3-4] 593 Eddy St., Providence 2	NPAssn	600	16,165	Req	46	24	(249)	25	20 Rotating General	67711
Roger Williams General Hospital +[1-3] 825 Chalkstone Ave., Providence 8	NPAssn	162	6,363	Req	30	12	No	200	8 Rotating General	67811
St. Joseph's Hospital [4] Broad St., Providence 7	Church	305	8,232	Req	32	12	(248)	100	10 Rotating General	67911
SOUTH CAROLINA—Hospitals, 6; Internships, 86										
Roper Hospital +[1-3-X71] Lucas and Calhoun Sts., Charleston 16	NPAssn	450	14,160	Req	53	12	No	83	21 Rotating General	68011
Columbia Hospital +[1-3] 2020 Hampton St., Columbia	County	439	13,271	Req	28	12	No	100	15 Rotating General	68111
McLeod Infirmary [1-3] 101-121 W. Cheves St., Florence	NPAssn	200	8,404	Req	19	12	No	200	5 Rotating General	68211
Greenville General Hospital +[1-3] 109 Memminger St., Greenville	CyCo	331	12,899	Req	32	12	No	100	24 Rotating General	68311
Orangeburg Regional Hospital +[3] 550 Carolina Ave., N.E., Orangeburg	CyCo	173	8,477	Req	21	12	No	150	6 Rotating General	68411
Spartanburg General Hospital +[3] 855 N. Church St., Spartanburg	County	370	17,540	Req	27	12	No	100	15 Rotating General	68511
SOUTH DAKOTA—Hospitals, 3; Internships, 19										
McKennan Hospital [1-3-X72] 7th Ave. and 21st St., Sioux Falls	Church	177	8,891	None	52	12	No	80	5 Rotating General	68611
Sioux Valley Hospital [1-3-X72] 1123 S. Euclid Ave., Sioux Falls	NPAssn	190	8,107	None	40	12	No	150	8 Rotating General	68711
Sacred Heart Hospital +[1-X72] W. 4th St., Yankton	Church	230	5,871	Req	40	12	No	150	6 Rotating General	68811
TENNESSEE—Hospitals, 14; Internships, 171										
Baroness Erlanger Hospital +[1-3-4] 264 Wiehl St., Chattanooga 3	CyCo	185	18,264	Req	28	12	No	125	18 Rotating General	68911
Holston Valley Community Hospital [1] W. Ravine St., Kingsport	NPAssn	242	9,049	Req	38	12	No	300	1 Rotating General 1 Rot. (Med.-Major) 1 Rot. (Surg.-Major) 1 Mix. Ob.-Gyn. Ped.	88311 88312 88313 88321
East Tennessee Baptist Hospital [1-3] Blount Ave., Knoxville	Church	254	10,206	Req	29	12	No	250	8 Rotating General	69011
Fort Sanders Hospital [1-3] 1909 W. Clinch Ave., Knoxville 16	NPAssn	190	7,658	None	24	12	No	250	6 Rotating General	69111
St. Mary's Memorial Hospital +[1-3] Oakhill Ave., Knoxville 17	Church	285	10,480	Req	29	12	(250)	250	10 Rotating General	69311
Baptist Memorial Hospital +[1-3] 899 Madison Ave., Memphis	Church	550	22,158	Req	28	12	No	75	26 Rotating General 1 Straight Medicine 1 Straight Surgery	69411 69432 69433
Methodist Hospital + 1265 Union Ave., Memphis 4	Church	275	14,428	Req	33	12	(251)	75	14 Rotating General	69611
St. Joseph Hospital +[1-3] 264 Jackson Ave., Memphis 7	Church	280	11,762	Req	33	12	No	75	12 Rotating General	69711
Hubbard Hospital +[1-3-4-X74] 1005 18th Ave., N., Nashville 8	NPAssn	188	4,239	None	48	12	No	100	12 Rotating General	69811
Mid-State Baptist Hospital +[1] 2000 Church St., Nashville	Church	250	7,164	Req	34	12	(252)	125	10 Rotating General	69911
St. Thomas Hospital +[1-3] 2000 Hayes St., Nashville 4	Church	235	10,250	None	34	12	No	175	5 Rotating General 2 Straight Medicine 3 Straight Surgery 1 Straight Ped.	70111 70132 70133 70134
Vanderbilt University Hospitals										
Nashville General Hospital +[1-x75] Hermitage Ave., Nashville 10	City	221	6,440	Req	25	12	(253)	50	12 Rotating General	70011
Vanderbilt University Hospital +[1-3-X75] 21st Ave., South at Edgehill, Nashville 5	NPAssn	352	10,995	Req	53	12	(252)	25	8 Straight Medicine 8 Straight Surgery 6 Straight Ped.	70232 70233 70234
Oakridge Hospital [1-3] Tennyson Rd., Oak Ridge	NPAssn	216	8,000	None	44	12	No	160	4 Rotating General	88611

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
TEXAS—Hospitals, 22; Internships, 301										
Brackenridge Hospital +$^{1-4}$ 15th and East Ave., Austin	City	204	7,010	Req	27	12	No	125	9 Rotating General	70411
Memorial Hospital $^{1-3}$ 2606 Hospital Blvd., Corpus Christi	CyCo	180	7,236	Req	30	12	No	100	5 Rotating General	70511
Baylor University Hospital +$^{1-3}$-X76 3500 Gaston Ave., Dallas 1	Church	723	27,652	Req	23	12	(254)	60	25 Rotating General 1 Straight Medicine 1 Straight Surgery	70611 70632 70633
Methodist Hospital +$^{1-3}$-X76 301 W. Colorado St., Dallas 8	Church	208	12,071	Req	27	12	No	75	10 Rotating General	70711
Parkland Hospital +^{1}-X76 3819 Maple Ave., Dallas	CyCo	357	11,393	Req	73	12	No	10	80 Rotating General 8 Straight Medicine	70811 70632
St. Paul's Hospital +$^{1-3}$-x76 3121 Bryan St., Dallas 1	Church	465	13,481	Req	31	12	No	100	11 Rotating General 1 Straight Surgery	70011 70033
El Paso General Hospital ^{1} 4815 Alameda Ave., El Paso	CyCo	215	3,444	Req	26	12	No	100	8 Rotating General	71011
City-County Hospital +$^{1-3-4}$ 1500 S. Main St., Fort Worth 4	CyCo	200	4,654	Req	30	12	No	50	13 Rotating General	71111
Harris Hospital +$^{1-3}$ 1300 W. Cannon, Fort Worth 4	Church	310	15,140	Req	38	12	No	100	14 Rotating General	71211
St. Joseph's Hosptial +$^{1-3}$ 1401 Main St., Fort Worth 4	Church	278	12,408	Req	19	12	No	150	12 Rotating General	71311
University of Texas Med. Branch Hospitals +$^{1-3}$-X77 600 Avenue B, Galveston	State	708	11,243	Req	62	12	No	50	36 Rotating General	71411
Hermann Hospital +^{1}-x78 1203 Ross Sterling Ave., Houston 25	NPAssn	625	25,224	Req	38	12	No	75	16 Rotating General	71511
Jefferson Davis Hospital +^{1}-X78 1601 Buffalo Dr., Houston 3	CyCo	500	14,415	Req	50	12	No	25	30 Rotating General	71611
Methodist Hospital +$^{1-3}$-x78 6516 Bertner Ave., Houston 25	Church	284	8,779	Req	40	12	No	75	8 Rotating General	71711
St. Joseph's Hospital +^{3}-x77-78 1910 Crawford St., Houston 3	Church	434	23,341	Req	44	12	No	100	6 Rotating General	71811
Baptist Memorial Hospital +$^{1-3}$ 205 Camden St., San Antonio	Church	300	14,128	Req	34	12	No	100	8 Rotating General	72111
Robert B. Green Memorial Hospital +$^{1-3-4}$ 515 Morales St., San Antonio 7	CyCo	135	6,370	Req	71	12	No	100	16 Rotating General	72211
Santa Rosa Hospital +^{3} 745 W. Houston St., San Antonio 7	Church	325	14,084	Req	84	12	No	100	14 Rotating General	72311
Kings Daughters Hospital +$^{1-3}$ 302 S. 22d St., Temple	NPAssn	110	3,065	Req	51	12	No	150	4 Rotating General	72411
Scott and White Memorial Hospitals +$^{1-3}$ 213 W. Avenue G, Temple	NPAssn	254	7,617	Req	34	12	(257)	150	8 Rotating General	72511
Providence Hospital $^{1-3}$ 1725 Colcord St., Waco	Church	225	6,690	Req	28	12	No	150	4 Rotating General	88311
Wichita Falls Clinic-Hospital + 1300 8th St., Wichita Falls	Part	102	4,985	Req	11	12	No	150	3 Rotating General	72611
UTAH—Hospitals, 6; Internships, 58										
St. Benedict's Hospital +$^{1-3}$ 3000 Polk Ave., Ogden	Church	170	5,925	Req	60	12	No	150	4 Rotating General	72711
Thomas D. Dee Memorial Hospital +$^{1-3}$-x79 2440 Harrison Blvd., Ogden	Church	215	9,504	Req	48	12	No	258	12 Rotating General	72811
Dr. W. H. Groves Latter-Day Saints Hospital +$^{1-3}$. 325 8th Ave., Salt Lake City 3	Church	333	16,415	Req	45	12	No	135	12 Rotating General	72911
Holy Cross Hospital +$^{1-3}$-x79 1045 E. First South St., Salt Lake City 2	Church	186	8,682	Req	45	12	No	150	6 Rotating General	73011
St. Mark's Hospital +^{1}-x79 803 N. 2d West, Salt Lake City 3	Church	210	8,863	Req	27	12	No	150	6 Rotating General	73111
Salt Lake County General Hospital +$^{1-3}$-X79 2033 S. State St., Salt Lake City 15	County	249	3,831	Req	66	12	(260)	50	10 Rotating General 2 Mixed Surg. Gyn. 4 Straight Medicine 2 Straight Ped.	73211 73246 73232 73234
VERMONT—Hospitals, 2; Internships, 20										
Bishop DeGoesbriand Hospital +$^{1-3}$-X80 S. Prospect St., Burlington	Church	200	12,944	Req	43	12	No	100	8 Rotating General	73411
Mary Fletcher Hospital +$^{1-3-4}$-X80 Colchester Ave., Burlington	NPAssn	273	6,379	Req	83	12	No	50	12 Rotating General	73511
VIRGINIA—Hospitals, 17; Internships, 175										
Johnston Memorial Hospital ^{1} Court St., Abingdon	NPAssn	120	3,726	Req	35	12	No	150	2 Rotating General	89111
Alexandria Hospital +$^{1-3}$ 709 Duke St., Alexandria	NPAssn	170	7,431	Req	36	12	No	125	8 Rotating General	73611
University of Virginia Hospital +$^{1-3}$-X81 Charlottesville	State	492	14,618	Req	47	12	(262)	25	9 Rotating General 12 Straight Medicine 12 Straight Surgery	73711 73732 73733
Chesapeake and Ohio Railway Employees Hosp.+$^{1-3}$ Ridgeway St., Clifton Forge	NPAssn	155	7,096	Req	40	12	No	100	5 Straight Medicine	89232
Memorial Hospital ^{1} 142 S. Main St., Danville	NPAssn	170	9,228	None	52	12	No	125	6 Rotating General	89311
Lynchburg General Hospital +$^{1-3}$ Lynchburg	NPAssn	158	5,951	Req	31	12	No	150	1 Rot. (Med. Major) 1 Rot. (Surg. Major)	73812 73813
Mary Immaculate Hospital +$^{1-3}$ Blair and Buxton Ave., Newport News	Church	150	4,826	Req	32	12	No	150	5 Rotating General	89411
Riverside Hospital +$^{1-3}$ 245 50th St., Newport News	NPAssn	225	9,638	Req	41	12	No	150	4 Rotating General 1 Rot. (Med. Major) 1 Rot. (Surg. Major) 1 Rot. (Ped. Major) 1 Rot. (Ob.-Gyn. Major)	73911 73912 73913 73914 73915
DePaul Hospital +$^{1-3}$ Kingsley Lane, Norfolk 5	Church	259	10,392	None	45	12	No	200	10 Rotating General	74011

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
VIRGINIA—Continued										
Norfolk General Hospital [+1-3] Raleigh and Colley Aves., Norfolk 7	NPAssn	316	10,491	Req	55	12	No	100	12 Rotating General 1 Rot. (Med. Major) 1 Rot. (Surg. Major) 1 Rot. (Ped. Major) 1 Rot. (Ob.-Gyn. Major)	74111 74112 74113 74114 74115
Johnston-Willis Hospital [+1-3] 2908 Kensington Ave., Richmond 21	Corp	225	8,262	Req	48	12	No	200	12 Rotating General	74211
Medical College of Virginia, Hospital Div. [+1-3-4-X82] (Memorial, Dooley and St. Philip Hospitals) 1200 E. Broad St., Richmond 19	State	831	24,049	Req	35	12	(264)	25	36 Rotating General 3 Straight Medicine 3 Straight Surgery	74311 74332 74333
Stuart Circle Hospital [1] 421-31 Stuart Circle, Richmond	Corp	114	3,858	Req	32	12	(263)	150	4 Rotating General	74411
Jefferson Hospital [+1-3] 1301-1321 Franklin Rd., Roanoke	Corp	150	5,867	Req	41	12	No	150	2 Rot. (Med. Major) 2 Rot. (Surg. Major)	74612 74613
Lewis Gale Hospital [+] 3d and Luck Ave., S. W., Roanoke	Corp	180	6,559	Req	30	12	No	150	6 Rotating General	74711
Memorial and Crippled Children's Hospital [1-3] Bellevlew and Lake Aves., Roanoke	NPAssn	150	5,818	Req	55	12	No	150	6 Rotating General	74811
Winchester Memorial Hospital [1] S. Stewart St., Winchester	NPAssn	245	7,077	None	25	12	No	100	6 Rotating General	74911
WASHINGTON—Hospitals, 12; Internships, 142										
Columbus Hospital [1-3] 1019 Madison St., Seattle 4	Church	150	3,514	None	41	12	No	150	4 Rotating General	75011
Doctors Hospital [+3-x83] 909 University St., Seattle 1	NPAssn	200	8,634	None	61	12	No	75	8 Rotating General	75111
King County Hospital [+1-4-X83] Unit No. 1 (Harborview) 325 Ninth Ave., Seattle 4	County	450	10,307	Req	58	12	No	75	34 Rotating General	75211
Providence Hospital [+1-3-x83] 17th and E. Jefferson, Seattle 22	Church	366	13,457	Req	55	12	No	140	16 Rotating General	75311
Swedish Hospital [+1-X83] 803 Summit Ave., Seattle 4	NPAssn	330	14,483	Req	52	12	(265)	75	16 Rotating General	75511
Virginia Mason Hospital [+1-3-x83] 1101 Terry Ave., Seattle 1	NPAssn	208	9,728	Req	67	12	(265)	75	10 Rotating General	75611
Deaconess Hospital [+1-3] 733 W. Fourth Ave., Spokane	Church	200	9,180	None	53	12	No	125	10 Rotating General	75711
Sacred Heart Hospital [+1-3] 101 W. 8th Ave., Spokane 4	Church	506	17,960	Req	29	12	No	125	12 Rotating General	75811
St. Luke's Hospital [+1-3] *830 N. Summit Blvd., Spokane 11*	NPAssn	265	8,455	Req	48	12	(267)	125	8 Rotating General	75911
Pierce County Hospital [1-3-4] 3582 Pacific Ave., Tacoma 8	County	240	4,008	Req	37	12	No	200	10 Rotating General	76011
St. Joseph Hospital [+1-3] 1812 S. Eye St., Tacoma 3	Church	200	7,449	Req	50	12	No	100	6 Rotating General	76111
Tacoma General Hospital [+1-3] 315 S. K St., Tacoma 3	NPAssn	225	9,917	Req	35	12	No	125	8 Rotating General	76211
WEST VIRGINIA—Hospitals, 9; Internships, 66										
Bluefield Sanitarium 307 Ramsey St., Bluefield	Corp	180	9,521	None	28	12	No	125	3 Rotating General	76311
Charleston General Hospital [+1] Brooks St. and Elmwood Ave., Charleston 25	NPAssn	229	9,117	Req	53	12	No	155	10 Rotating General	76411
Kanawha Valley Hospital [+3] 1014 Virginia St., E., Charleston 1	Corp	148	6,181	Req	52	12	No	130	4 Rotating General	76511
Memorial Hospital [+1-3] 3200 Noyes Ave., S. E., Charleston 4	NPAssn	115	3,905	Req	52	12-24	No	140	4 Rotating General 1 Rot. (Med.-Major) 1 Rot. (Surg.-Major) 1 Rot. (Ped.-Major) 1 Rot. (Ob.-Gyn.-Major)	90211 90212 90213 90214 90215
St. Mary's Hospital [+1-3] 2900 First Ave., Huntington 2	Church	300	14,825	Req	37	12	No	100	10 Rotating General	76611
Camden-Clark Memorial Hospital [1-3] 717 Ann St., Parkersburg	City	160	5,989	Req	25	12	No	150	3 Rotating General	76711
St. Joseph's Hospital [+1-3] 1801 Market St., Parkersburg	Church	170	7,040	Req	21	12	No	200	4 Rotating General	76811
Ohio Valley General Hospital [+1-3-4] 2000 Eoff St., Wheeling	NPAssn	330	10,474	Req	36	12	No	225	10 Rotating General	76911
Wheeling Hospital [1-3] 109 Main St., Wheeling	Church	245	8,867	Req	18	12	No	150	8 Rotating General	77011
WISCONSIN—Hospitals, 23; Internships, 211										
Luther Hospital [1-3-x84] 310 Chestnut St., Eau Claire	NPAssn	238	7,133	Req	52	12	No	200	6 Rotating General	77111
St. Agnes Hospital [1-3] 430 E. Division St., Fond du Lac	Church	300	9,687	None	37	12	No	125	6 Rotating General	77211
Mercy Hospital [+1-3-x84] 566 N. Washington St., Janesville	Church	186	5,135	Req	45	12	No	150	5 Rotating General	77311
La Crosse Lutheran Hospital [+1-3-x84] 1910 South Ave., La Crosse	Church	150	5,769	Req	46	12	No	200	3 Rotating General	77411
St. Francis Hospital [1-3-x84] 10th and Market St., La Crosse	Church	278	8,493	None	36	12	No	200	8 Rotating General	77511
Madison General Hospital [+1-3] 925 Mound St., Madison 5	NPAssn	223	1,507	None	42	12	No	125	12 Rotating General	77611
Methodist Hospital [+1-3] 309 W. Washington Ave., Madison 3	Church	135	5,470	Req	49	12	No	150	4 Rotating General	77711
St. Mary's Hospital [+1-3] 720 S. Brooks St., Madison 5	Church	240	9,209	Req	40	12	No	125	6 Rotating General	77811

Abbreviations and other references will be found on pages 303 and 304.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
WISCONSIN—Continued										
University Hospitals $^{+1-3}$-X84 1300 University Ave., Madison 6	State	750	13,529	Req	73	12	No	25	25 Rotating General	77911
St. Joseph's Hospital $^{+1}$-x84 St. Joseph's St., Marshfield	Church	245	7,160	Req	56	12	No	200	6 Rotating General	78011
Columbia Hospital $^{+1-3}$ 3321 N. Maryland Ave., Milwaukee 11	NPAssn	190	6,576	None	53	12	(268)	100	10 Rotating General	78111
Evangelical Deaconess Hospital $^{+1-3}$ 1621 W. Wisconsin Ave., Milwaukee 3	Church	138	7,243	Req	49	12	(270)	200	8 Rotating General	78211
Milwaukee Children's Hospital $^{+1-3-4}$-X85 721 N. 17th St., Milwaukee 3	NPAssn	160	4,873	Req	76	12	No	100	2 Straight Ped.	78334
Milwaukee County Hospital $^{+1-3-4}$-X85 8700 West Wisconsin Ave., Milwaukee 13	County	900	23,994	Req	26	12	(273)	10	40 Rotating General	78411
Milwaukee Hospital $^{+1-3}$-x85 2200 W. Kilbourn Ave., Milwaukee 3	Church	301	10,530	Req	46	12	(268)	100	10 Rotating General	78511
Misericordia Hospital $^{1-3}$ 1255 N. 22d St., Milwaukee 3	Church	180	6,653	Req	60	12	No	200	4 Rotating General	89711
Mount Sinai Hospital $^{+1-3}$ 908 N. 12th St., Milwaukee 3	NPAssn	184	8,788	Req	28	12	No	200	12 Rotating General	78711
St. Joseph's Hospital $^{+1}$-X85 5000 W. Chambers St., Milwaukee 10	Church	366	14,619	Req	51	12	(271)	100	14 Rotating General	78811
St. Luke's Hospital $^{+1-3}$ Oklahoma Ave. and S. 29th St., Milwaukee 15	NPAssn	312	8,238	None	32	12	(269)	200	13 Rotating General	78911
St. Mary's Hospital $^{+1}$ 2320 N. Lake Dr., Milwaukee 11	Church	235	8,382	Req	49	12	No	100	7 Rotating General	79011
Theda Clark Memorial Hospital ^{1} 215 Lincoln St., Neenah	NPAssn	170	5,595	None	30	12	No	150	2 Rotating General	79222
Mercy Hospital ^{1} 185 Hazel St., Oshkosh	Church	216	7,040	None	20	12	No	200	4 Rotating General	79311
St. Mary's Hospital ^{1}-x84 Maple Hill, Wausau	Church	230	8,932	None	32	12	No	150	4 Rotating General	79511
CANAL ZONE—Hospitals, 1; Internships, 14										
Gorgas Hospital $^{+3}$ Ancon Personnel Director, Panama Canal Company, Balboa Heights, Canal Zone	Fed	499	6,623	Req	70	12	No	198	14 Rotating General	80611
HAWAII—Hospitals, 2; Internships, 21										
Queen's Hospital $^{+}$ Punchbowl and Miller Sts., Honolulu 9	NPAssn	359	14,072	Req	67	12	No	100	12 Rotating General	80811
St. Francis Hospital $^{+1-3}$ 2260 Liliha St., Honolulu 17	Church	213	7,755	Req	46	12	No	75	9 Rotating General	80911

The following general hospitals, investigated and approved by the Council on Medical Education and Hospitals, are considered in position to *furnish acceptable intern* training in accordance with standards adopted by the American Medical Association. The number and type of internships as listed represent appointments for the intern year 1954-1955.

Hospitals, 20; Internships, 208									
City Hospital $^{+}$ 850 St. Anthony St., Mobile 16, Ala.	CyCo	277	10,640	Req	47	12	No	100	15 Rotating General
South Shore Hospital $^{+1-3}$ 8015 S. Luella Ave., Chicago 17, Ill.	NPAssn	150	6,135	Req	32	12	(141)	200	7 Rotating General
Lutheran Deaconess Home and Hospital $^{+1-3}$ 1412 E. 24th St., Minneapolis 4, Minn.	NPAssn	160	7,284	None	50	12	No	100	8 Rotating General
Alexian Brothers Hospital ^{3*} 655 E. Jersey St., Elizabeth 1, N. J.	Church	166	3,519	Req	25	12	(205)	100	6 Rotating General
Mother Cabrini Memorial Hospital $^{+1-3}$ 611 Edgecombe Ave., New York 32, N. Y.	NPAssn	170	3,695	Req	23	12	No	75	8 Rotating General
New York Infirmary $^{+2-3}$ 321 E. 15th St., New York 3, N. Y.	NPAssn	...	2,389	Req	53	12	No	75	5 Rotating General
Mercy Hospital $^{+1-3}$-X70 1400-1430 Locust St., Pittsburgh 19, Pa.	Church	655	16,885	Req	27	12	No	150	21 Rotating General
St. Francis Hospital $^{+1-3-4}$-X70 45th St., Pittsburgh 1, Pa.	NPAssn	691	14,036	Req	36	12	No	150	20 Rotating General
South Side Hospital $^{+1-3}$ S. Twentieth and Jane Sts., Pittsburgh 3, Pa.	NPAssn	303	8,267	Req	22	12	No	225	8 Rotating General
Washington Hospital ^{1} 155 Wilson Ave., Washington, Pa.	NPAssn	204	6,568	Req	20	12	No	200	6 Rotating General
Memorial Hospital $^{+1}$ Prospect St., Pawtucket, R. I.	NPAssn	214	7,839	Req	27	12	No	75	8 Rotating General
Knoxville General Hospital $^{+1-4}$ Cleveland Pl., Knoxville 17, Tenn.	City	285	9,988	Req	21	12	No	100	10 Rotating General
City of Memphis Hospitals $^{+1-3-4}$-X73 860 Madison, Memphis, Tenn.	City	564	20,525	Req	55	12	No	35	36 Rotating General
Seattle General Hospital Fifth Ave. at Marion St., Seattle 4, Wash.	NPAssn	116	4,876	None	41	12	(265)	150	5 Rotating General
St. Michael Hospital $^{+1-3}$ 1845 N. Fourth, Milwaukee 12, Wis.	Church	137	4,759	Req	39	12	(272)	150	3 Rotating General
Arecibo District Hospital $^{1-3}$ Arecibo, P. R.	State	300	6,116	Req	25	12	(274)	75	6 Rotating General
Bayamon Charity District Hospital $^{+1-3}$-x86 Insular Highway #2, Bayamon, P. R.	State	266	7,962	Req	49	12	No	75	12 Rotating General
Fajardo District Hospital ^{1} General Valero Ave., Fajardo, P. R.	State	305	6,915	Req	10	12	(274)	75	8 Rotating General
Presbyterian Hospital $^{1-3}$-x86 Ashford Ave., San Juan 1, P. R.	Church	124	4,017	Req	37	12	No	50	6 Rotating General
San Juan City Hospital $^{+1-3}$-X86 De Diego Ave., San Juan 34, P. R.	City	340	10,198	Req	54	12	No	75	12 Rotating General

Abbreviations and other references will be found on pages 303 and 304.

HOSPITALS APPROVED FOR INTERNSHIPS IN THE DOMINION OF CANADA

The following list of hospitals which conform to the standards of the Canadian Medical Association is published for the information of graduates interested in an internship appointment in a Canadian hospital. Hospitals that are unqualifiedly approved as conforming to the standards of the Canadian Medical Association may be considered as offering internships equivalent in educational value to those in hospitals approved for intern training by the Council.

This list, revised to Sept. 1, 1953, has been furnished by the Canadian Medical Association.

Name of Hospital	Location	Name of Hospital	Location	Name of Hospital	Location
St. John's General Hospital	St. John's, Nfld.	Sherbrooke Hospital	Sherbrooke, Que.	Grace Hospital	Windsor, Ont.
Camp Hill Hospital	Halifax, N. S.	*Hospital General de Verdun*	Verdun, Que.	Hotel Dieu of St. Joseph	Windsor, Ont.
Halifax Infirmary	Halifax, N. S.	Brantford General Hospital	Brantford, Ont.	Metropolitan Hospital	Windsor, Ont.
Victoria General Hospital	Halifax, N. S.	Hamilton General Hospital	Hamilton, Ont.	St. Boniface Gen. Hosp.	St. Boniface, Man.
Moncton Hospital	Moncton, N. B.	St. Joseph's Hospital	Hamilton, Ont.	Children's Hospital	Winnipeg, Man.
Saint John General Hospital	Saint John, N. B.	Hotel Dieu Hospital	Kingston, Ont.	Deer Lodge Hospital	Winnipeg, Man.
Hotel-Dieu St.-Vallier	Chicoutimi, Que.	Kingston General Hospital	Kingston, Ont.	Misericordia Hospital	Winnipeg, Man.
Children's Memorial Hospital	Montreal, Que.	Kitchener-Waterloo Hospital	Kitchener, Ont.	Winnipeg General Hospital	Winnipeg, Man.
Herbert Reddy Memorial Hosp.	Montreal, Que.	St. Joseph's Hospital	London, Ont.	Regina General Hospital	Regina, Sask.
Hospital Sainte-Jeanne-d'Arc	Montreal, Que.	Victoria Hospital	London, Ont.	Regina Grey Nuns' Hospital	Regina, Sask.
Hospital Sainte-Justine	Montreal, Que.	Westminster Hospital	London, Ont.	St. Paul's Hospital	Saskatoon, Sask.
Hospital Saint-Luc	Montreal, Que.	Oshawa General Hospital	Oshawa, Ont.	Saskatoon City Hospital	Saskatoon, Sask.
Hotel Dieu de Montreal	Montreal, Que.	Ottawa Civic Hospital	Ottawa, Ont.	Calgary General Hospital	Calgary, Alta.
Jewish General Hospital	Montreal, Que.	Ottawa General Hospital	Ottawa, Ont.	Colonel Belcher Hospital	Calgary, Alta.
Montreal General Hospital	Montreal, Que.	Peterborough Civic Hosp.	Peterborough, Ont.	Holy Cross Hospital	Calgary, Alta.
Notre-Dame Hospital	Montreal, Que.	General Hosp. of Port Arthur	Port Arthur, Ont.	Edmonton General Hospital	Edmonton, Alta.
Queen Elizabeth Hospital	Montreal, Que.	St. Catharines Gen. Hosp.	St. Catharines, Ont.	Misericordia Hospital	Edmonton, Alta.
Queen Mary Veteran's Hospital	Montreal, Que.	Hospital for Sick Children	Toronto, Ont.	Royal Alexandra Hospital	Edmonton, Alta.
Royal Victoria Hospital	Montreal, Que.	Mount Sinai Hospital	Toronto, Ont.	University of Alberta Hospital	Edmonton, Alta.
St. Mary's Hospital	Montreal, Que.	St. Joseph's Hospital	Toronto, Ont.	Royal Columbian Hosp.	New Westminster, B. C.
Hospital de l'Enfant Jesus	Quebec, Que.	St. Michael's Hospital	Toronto, Ont.	St. Paul's Hospital	Vancouver, B. C.
Jeffery Hale's Hospital	Quebec, Que.	Sunnybrook Veterans' Hospital	Toronto, Ont.	Shaughnessy Hospital	Vancouver, B. C.
L'Hotel-Dieu, Quebec	Quebec, Que.	Toronto East Gen. Hosp.	Toronto, Ont.	Vancouver General Hospital	Vancouver, B. C.
Saint-Sacrement Hospital	Quebec, Que.	Toronto General Hospital	Toronto, Ont.	Royal Jubilee Hospital	Victoria, B. C.
Veteran's Hospital	Quebec, Que.	Toronto Western Hospital	Toronto, Ont.	St. Joseph's Hospital	Victoria, B. C.
Ste. Anne's Hospital	Ste. Anne de Bellevue, Que.	Women's College Hospital	Toronto, Ont.	Veterans' Hospital	Victoria, B. C.

ABBREVIATIONS AND NOTES

1. Appointments available to women applicants
2. Appointments restricted to women applicants
3. Appointments available to graduates of foreign medical schools. Details regarding requirements for appointment can be secured from the hospitals concerned.
4. Dental internships available
5. Available to citizens of the United States only
6. General Practice internships

* Male patients only.

+ The plus sign indicates additional approval for residencies in specialties, as shown in the Council's list of Approved Residencies and Fellowships.

CyCo	City and County	Op	Optional
Corp	Corporation unrestricted as to profit	Req	Required
NPAssn	Nonprofit association		
Part	Partnership		

Medical School Affiliations

Footnotes 10 to 86 refer to medical schools affiliated with hospitals for undergraduate clinical clerkships.

Hospitals have been identified with symbol X when a medical school has indicated that the hospital is a major unit in the school's teaching program.

Hospitals have been identified with symbol x when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program.

10. Medical College of Alabama, Birmingham, Ala.
11. University of Arkansas School of Medicine, Little Rock, Ark.
12. College of Medical Evangelists School of Medicine, Loma Linda, Los Angeles, Calif.
13. University of California at Los Angeles School of Medicine, Los Angeles, Calif.
14. University of Southern California School of Medicine, Los Angeles, Calif.
15. Stanford University School of Medicine, San Francisco, Calif.
16. University of California School of Medicine, San Francisco, Calif.
17. University of Colorado School of Medicine, Denver, Colo.
18. Yale University School of Medicine, New Haven, Conn.
19. Georgetown University School of Medicine, Washington, D. C.
20. George Washington University School of Medicine, Washington, D. C.
21. Howard University College of Medicine, Washington, D. C.
22. Emory University School of Medicine, Atlanta (Emory University), Ga.
23. Medical College of Georgia, Augusta, Ga.
24. Chicago Medical School, Chicago, Ill.
25. Northwestern University Medical School, Chicago, Ill.
26. Stritch School of Medicine of Loyola University, Chicago, Ill.
27. University of Chicago Medical School, Chicago, Ill.
28. University of Illinois College of Medicine, Chicago, Ill.
29. Indiana University School of Medicine, Bloomington-Indianapolis, Ind.
30. State University of Iowa College of Medicine, Iowa City, Iowa
31. University of Kansas School of Medicine, Lawrence-Kansas City, Kan.
32. University of Louisville School of Medicine, Louisville, Ky.
33. Louisiana State University School of Medicine, New Orleans, La.
34. Tulane University of Louisiana School of Medicine, New Orleans, La.
35. Johns Hopkins University School of Medicine, Baltimore, Md.
36. University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, Md.
37. Boston University School of Medicine, Boston, Mass.
38. Harvard Medical School, Boston, Mass.
39. Tufts College Medical School, Boston, Mass.
40. University of Michigan Medical School, Ann Arbor, Mich.
41. Wayne University College of Medicine, Detroit, Mich.
42. University of Minnesota Medical School, Minneapolis, Minn.
43. [illegible] l of Medicine, St. Louis, Mo.
44. [illegible] ool of Medicine, St. Louis, Mo.
45. [illegible] l of Medicine, Omaha, Neb.
46. [illegible] llege of Medicine, Omaha, Neb.
47. [illegible] Hanover, N. H.
48. [illegible] bany, N. Y.
49. University of Buffalo School of Medicine, Buffalo, N. Y.
50. Columbia University College of Physicians and Surgeons, New York, N. Y.
51. Cornell University Medical College, New York, N. Y.
52. New York Medical College, New York, N. Y.
53. New York University College of Medicine, New York, N. Y.
54. State University of New York College of Medicine at New York City, Brooklyn, N. Y.
55. University of Rochester School of Medicine and Dentistry, Rochester, N. Y.
56. State University of New York at Syracuse College of Medicine, Syracuse, N. Y.
57. University of North Carolina School of Medicine, Chapel Hill, N. C.
58. *Duke University School of Medicine, Durham, N. C.*
59. Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C.
60. University of Cincinnati College of Medicine, Cincinnati, Ohio
61. Western Reserve University School of Medicine, Cleveland, Ohio
62. Ohio State University College of Medicine, Columbus, Ohio
63. University of Oklahoma School of Medicine, Oklahoma City, Okla.
64. University of Oregon Medical School, Portland, Ore.
65. Hahnemann Medical College and Hospital of Philadelphia, Philadelphia, Pa.
66. *Jefferson Medical College of Philadelphia, Philadelphia, Pa.*
67. Temple University School of Medicine, Philadelphia, Pa.
68. University of Pennsylvania School of Medicine, Philadelphia, Pa.
69. Woman's Medical College of Pennsylvania, Philadelphia, Pa.
70. University of Pittsburgh School of Medicine, Pittsburgh, Pa.
71. Medical College of the State of South Carolina, Charleston, S. C.
72. University of South Dakota School of Medicine, Vermillion, S. D.
73. University of Tennessee College of Medicine, Memphis, Tenn.
74. Meharry Medical College, Nashville, Tenn.
75. Vanderbilt University School of Medicine, Nashville, Tenn.
76. Southwestern Medical School of the University of Texas, Dallas, Texas
77. University of Texas School of Medicine, Galveston, Texas
78. Baylor University College of Medicine, Houston, Texas
79. University of Utah School of Medicine, Salt Lake City, Utah
80. University of Vermont College of Medicine, Burlington, Vt.
81. University of Virginia School of Medicine, Charlottesville, Va.
82. Medical College of Virginia, Richmond, Va.
83. University of Washington School of Medicine, Seattle, Wash.
84. University of Wisconsin Medical School, Madison, Wis.
85. *Marquette University School of Medicine, Milwaukee, Wis.*
86. University of Puerto Rico School of Medicine, San Juan, Puerto Rico

Affiliations as Referred to in Column Headed: "Affiliated Service"

100. Children's Hospital, Birmingham
101. Maricopa County Hospital, Phoenix
102. Pima County General Hospital, Tucson
103. University Hospital, Little Rock
104. Veterans Admin. Hospital, Fort Roots, Ark.
105. Children's Hospital, Long Beach
106. California Hospital, Los Angeles
107. Children's Hospital, Los Angeles
108. Los Angeles County Hospital, Los Angeles
109. Los Angeles County Hospital, Los Angeles
St. John's and Santa Monica Hospitals, Santa Monica
110. Fairmont Hospital of Alemeda County, Oakland
111. Children's Hospital, San Francisco
112. Children's Hospital; Mary's Help Hospital; and St. Luke's Hospital, San Francisco
113. Children's and San Francisco Hospitals, San Francisco
114. Santa Barbara General Hospital, Santa Barbara
115. Santa Monica Hospital, Santa Monica
116. Vallejo Permanente Hospital, Vallejo
117. Boulder Colorado Sanitarium; Boulder County Hospital, Denver
118. Children's Hospital, Denver
119. Community Hospital program includes 6 months assignment to Denver General Hospital and 6 months assignment in an approved private hospital in Denver
120. University of Colorado Medical Center, Denver
121. Hartford Hospital, Hartford
122. J. J. McCook Memorial Hospital for Communicable Diseases, Hartford
123. Southbury Training School, Ped., Southbury
124. Gallinger Municipal Hospital, Washington, D. C.
125. Gallinger Municipal and Children's Hospitals, Washington, D. C.
126. Georgetown University Hospital, Washington, D. C.
127. Veterans Admin. Hospital, Bay Pines, Fla., American Legion Crippled Children's Hospital, St. Petersburg
128. National Children's Cardiac Home, Ped., Miami
129. St. Mary's Hospital, Athens, Ga.
130. Grady Memorial Hospital, Atlanta
131. Grady Memorial Hospital, Atlanta; Emory University Hospital, Emory University
132. St. Joseph's Catholic Hospital, Augusta
133. University Hospital, Ob.-Gyn., Augusta
134. Chicago Lying-In Hospital, Chicago
135. Children's Memorial Hospital, Chicago
136. Children's Memorial Hospital; Veterans Admin. Hospital; Wesley Memorial Hospital, Chicago; Evanston Hospital, Evanston
137. Cook County and Frank Cuneo Hospitals, Chicago
138. Holy Cross Hospital, Ob.-Gyn., Chicago; Alexian Brothers Hospital, Psych., St. Louis
139. Mercy Hospital, Ped., Chicago
140. Municipal Contagious Disease Hospital, Chicago
141. Municipal Contagious Disease Hospital; Presbyterian Hospital, Chicago
142. Decatur City Public Hospital; Macon County T.B. Sanitorium, Decatur
143. Winfield Sanatorium, Winfield
144. James Whitcomb Riley Hospital for Children, Indianapolis
145. Northern Indiana Children's Hospital, South Bend
146. Broadlawns Polk County Hospital, Des Moines
147. Sedgwick County Hospital, Wichita
148. Children's Hospital, Louisville
149. Children's Hospital; Jewish Hospital, Louisville
150. Our Lady of Peace Hospital, Louisville
151. St. Joseph Infirmary, Louisville
152. Charity Hospital, New Orleans
153. Central Louisiana State Hospital, Pineville
154. Confederate Memorial Medical Center, Shreveport
155. Children's Hospital School, Baltimore
156. Children's Hospital; Baltimore City Hospital, Ped., Baltimore
157. Johns Hopkins Hospital, Baltimore
158. University Hospital, Baltimore
159. Baltimore City Hospital; University Hospital, Baltimore
160. Boston City Hospital, Boston
161. Boston Floating Hospital, Boston
162. Eastern Maine General Hospital, Bangor; Boston City Hospital, Boston Dispensary, Boston Floating Hospital, Boston
163. New England Deaconess Hospital; Peter Bent Brigham Hospital, Boston
164. Boston Lying-In Hospital, Boston
165. Haynes Memorial Hospital, Brighton
166. St. Margaret's Hospital, Dorchester
167. Wesson Maternity Hospital, Springfield
168. University Hospital, Ann Arbor
169. Children's Hospital, Detroit
170. Children's Hospital; Herman Kiefer Hospital, Detroit
171. Children's Hospital; City of Detroit Receiving Hospital, Detroit
172. Harper Hospital, Detroit
173. Herman Kiefer Hospital; Woman's Hospital, Detroit
174. Herman Kiefer Hospital; City of Detroit Receiving Hospital, Detroit
175. Herman Kiefer Hospital, Cont., Detroit; St. Joseph Retreat Hospital, Psych., Dearborn
176. Hurley Hospital, Flint
177. Genesee County T.B. Sanatorium; Hurley Hospital, Flint
178. McLaren General Hospital, Flint
179. Cardiac Clinic, Med.; Evangeline Home and Hospital, Ob., Grand Rapids
180. Bronson Methodist Hospital, Kalamazoo
181. Ingham County T.B. Sanatorium, Lansing
182. Oakland County Contag. Hospital; Oakland County T.B. Sanatorium; Pontiac State Hospital, Pontiac
183. Saginaw County Hospital; Saginaw County Infirmary, Saginaw
184. Miller Memorial Hospital, Duluth
185. Minneapolis General Hospital, Minneapolis
186. University of Minnesota Hospitals, Minneapolis
187. Ancker Hospital; Charles T. Miller Hospital, St. Paul
188. Children's Hospital, St. Paul
189. Kenny Institute, Minneapolis; Children's Hospital, St. Paul
190. Gillette State Hospital for Crippled Children, St. Paul
191. Mississippi State Charity Hospital, Vicksburg
192. Children's Mercy Hospital, Kansas City, Mo.
193. Home for Jewish Aged, Kansas City, Mo.
194. Alexian Brothers Hospital, St. Louis
195. Barnes Hospital, Med.; St. Louis Children's Hospital, Ped., St. Louis
196. St. Louis City Hospital, Ped., St. Louis
197. St. Louis Children's Hospital; St. Louis City Hospital, St. Louis
198. St. Louis County Hospital; St. Louis Maternity Hospital, St. Louis; Burge Hospital, Springfield
199. St. Mary's Infirmary, St. Louis
200. Children's Memorial Hospital, Omaha
201. Children's Memorial Hospital; Douglas County Hospital, Omaha
202. Douglas County Hospital, Omaha
203. Douglas County Hospital, Omaha; St. Bernard's Hospital, Psych., Council Bluffs, Ia.
204. Children's Seashore Home; Clyde Fish Memorial Hospital; Betty Bacharach Home, Atlantic City
205. St. Elizabeth Hospital, Elizabeth
206. Medical Center, Jersey City
207. Margaret Hague Maternity Hospital, Jersey City
208. Margaret Hague Maternity Hospital, Jersey City
209. Babies Hospital-Coit Memorial; Newark City Hospital, Newark
210. Anthony N. Brady Maternity Hospital, Albany
211. Kingston Avenue Hospital, Brooklyn
212. Children's Hospital, Buffalo
213. E. J. Meyer Memorial Hospital, Buffalo
214. Emergency Hospital, Buffalo
215. Chemung County T.B. Sanatorium, Elmira
216. Geneva General Hospital, Geneva
217. Bellevue Hospital Center, New York City
218. Beth Israel Hospital, Ob., New York City
219. Lincoln Hospital, New York City
220. Misericordia Hospital, Ob., Ped., and Gyn., New York City
221. Willard Parker Hospital, New York City
222. Genesee Hospital, Rochester, N. Y.
223. Strong Memorial Hospital, Rochester
224. Glenridge Sanatorium, Schenectady
225. City Hospital; Crouse-Irving Hospital; Psychopathic Hospital; Syracuse Memorial Hospital; University Hospital; Syracuse Dispensary, Syracuse
226. Durham County T.B. Sanatorium; Pul. Dis.; Lincoln Hospital; Eastern Medical Center, D and S; McPherson Hospital, E.E.N.T.; Watts Hospital, Ped., Psych., Durham; Veterans Admin. Hospital, Roanoke; Fort Bragg Hospital, Ped., Fort Bragg, N. C.; Shriners Hospital for Crippled Children, Ortho., Greenville, S. C.; North Carolina Orthopedic Hospital, Ortho., Gastonia, N. C.; Armed Forces Institute of Pathology, Ortho., Washington, D. C.; Charlotte Memorial Hospital, Ortho., Charlotte; Warm Springs Foundation, Ortho., Warm Springs; Alfred I. Dupont Institute, Ortho., Wilmington, Del.
227. Children's Hospital, Ped., Akron
228. Children's Hospital, Ped., Cincinnati
229. Cincinnati General Hospital, Ped., Cincinnati
230. Daniel Drake Memorial Hospital for Chronic Diseases; Dunham Hospital, Cincinnati
231. City Hospital, Cleveland
232. St. Ann's Maternity Hospital, Cleveland
233. Children's Hospital, Columbus
234. Children's Hospital, Columbus; Maumee Valley Hospital, Toledo
235. Children's Hospital; Columbus Receiving Hospital; Ohio T.B. Hospital; St. Francis Hospital, Columbus
236. Lima State Hospital, Neuro., Psych., Lima
237. Contagious Disease Hospital; Toledo State Hospital; William W. Roche Memorial Hospital, Toledo
238. Valley View Hospital, Clinton; Mercy Hospital; St. Anthony's Hospital, Oklahoma City
239. University Hospitals, Oklahoma City
240. Providence Hospital, Ped., Portland
241. City Isolation Hospital; Shriners Hospital for Crippled Children, Portland
242. Children's Hospital, Ped., Philadelphia
243. Hospital of the University of Pennsylvania, Philadelphia
244. Philadelphia Hospital for Contagious Diseases, Philadelphia
245. Presbyterian Hospital, Philadelphia
246. St. Christopher's Hospital for Children, Philadelphia
247. Children's Hospital; Elizabeth Steele McGee Hospital; Eye and Ear Hospital, Pittsburgh
248. Charles V. Chapin Hospital, Providence
249. Providence Lying-in Hospital, Providence
250. East Tennessee T.B. Hospital, Knoxville
251. Memphis E.E.N. and T. Hospital; West Tennessee T.B. Hospital, Memphis
252. Nashville General Hospital, Nashville
253. Vanderbilt University Hospital, Nashville
254. Children's Medical Center, Ped., Dallas
255. Parkland Hospital, Dallas
256. Jefferson Davis Hospital, Houston
257. Gulf, Colorado and Santa Fe Railroad Hospital, Temple
258. Utah State T.B. Sanatorium, Ogden
259. Dr. W. H. Groves Latter-Day Saints Hospital; Holy Cross Hospital; St. Benedict's Hospital; Salt Lake County General Hospital, Salt Lake City
260. Veterans Admin. Hospital, Salt Lake City
261. Arlington Hospital, Arlington, Va.; Prince George General Hospital, Cheverly, Md.
262. Blue Ridge Sanato[illegible], [illegible]; Kings Daughters Hospital, Staunton; Lynch[illegible] [illegible]chburg
263. Medical College of [illegible], Richmond
264. Southside Community Hospital, Farmville; Raiford Memorial Hospital, Franklin; Northampton-Accomack Memorial Hospital, Nassawadox; Mary Washington Hospital, Fredericksburg; Richmond Eye, Ear, Nose, and Throat Hospital, Richmond; St. Luke's Hospital, Richmond; Stuart Circle Hospital, Richmond; Louise Obici Memorial Hospital, Suffolk
265. Children's Orthopedic Hospital, Seattle
266. U. S. Army Hospital, Fort Lawton, Seattle
267. Booth Memorial Hospital; Shriners Hospital for Crippled Children, Spokane
268. Milwaukee Children's Hospital, Milwaukee
269. Milwaukee County Hospital, Milwaukee
270. Johnston Emergency Hospital; South View Hospital, (Isolation City) ; Milwaukee Children's Hospital; Milwaukee County Hospital, Anes., Milwaukee
271. St. Michael's Hospital, Milwaukee
272. South View Hospital, Milwaukee
273. St. Joseph's Hospital; South View Hospital, Milwaukee
274. Bayamon District Hospital, Path., Bayamon, P. R.
275. Variety Children's Hospital, Miami

APPROVED INTERNSHIPS BY TYPE OF SERVICE

ROTATING GENERAL

Number of Approved Programs, 804

FEDERAL

UNITED STATES ARMY

Army and Navy General Hospital	Hot Springs National Park, Ark.
Letterman Army Hospital	San Francisco
Fitzsimons Army Hospital	Denver
Army Medical Center	Washington, D. C.
Murphy Army Hospital	Waltham, Mass.
Percy Jones Army Hospital	Battle Creek, Mich.
Valley Forge Army Hospital	Phoenixville, Pa.
William Beaumont Army Hospital	El Paso, Tex.
Brooke Army Medical Center	*San Antonio, Tex.*
Madigan Army Hospital	Fort Lewis, Wash.
Tripler Army Hospital	Moanalua, Honolulu, T. H.

UNITED STATES NAVY

U. S. Naval Hospital	Oakland, Calif.
U. S. Naval Hospital	Oceanside, Calif.
U. S. Naval Hospital	San Diego, Calif.
U. S. Naval Hospital	Jacksonville, Fla.
U. S. Naval Hospital	Pensacola, Fla.
U. S. Naval Hospital	Great Lakes, Ill.
U. S. Naval Hospital	Bethesda, Md.
U. S. Naval Hospital	Chelsea, Mass.
U. S. Naval Hospital	St. Albans, N. Y.
U. S. Naval Hospital	Philadelphia
U. S. Naval Hospital	Newport, R. I.
U. S. Naval Hospital	Charleston, S. C.
U. S. Naval Hospital	Portsmouth, Va.
U. S. Naval Hospital	Bremerton, Wash.

U. S. PUBLIC HEALTH SERVICE

U. S. Public Health Service Hospital	San Francisco
U. S. Public Health Service Hospital	New Orleans, La.
U. S. Public Health Service Hospital	Baltimore
U. S. Public Health Service Hospital	Staten Island, N. Y.
U. S. Public Health Service Hospital	Seattle

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Freedmen's Hospital	Washington, D. C.
St. Elizabeths Hospital	Washington, D. C.

VETERANS ADMINISTRATION

Veterans *Admin.* Hospital	*Little Rock, Ark.*
Veterans Admin. Hospital	Long Beach, Calif.
Veterans Admin. Hospital	Los Angeles
Veterans Admin. Hospital	Dearborn, Mich.
Veterans Admin. Hospital	Oklahoma City, Okla.
Veterans Admin. Hospital	Houston, Tex.
Veterans Admin. Hospital	Salt Lake City

OTHER FEDERAL

Gorgas Hospital	Ancon, C. Z.
Bayamon District Hospital	Bayamon, P. R.

NONFEDERAL

Birmingham Baptist Hospital	Birmingham, Ala.
Carraway *Methodist Hospital*	*Birmingham, Ala.*
Jefferson-Hillman Hospital	Birmingham, Ala.
St. Vincent's Hospital	Birmingham, Ala.
Lloyd Noland Hospital	Fairfield, Ala.
Holy Name of Jesus Hospital	Gadsden, Ala.
City Hospital	Mobile, Ala.
Maricopa County General Hospital	Phoenix, Ariz.
Memorial Hospital	Phoenix, Ariz.
St. Joseph's Hospital	Phoenix, Ariz.
St. Mary's Hospital and Sanatorium	Tucson, Ariz.
Tucson Medical Center	Tucson, Ariz.
Arkansas Baptist *Hospital*	Little *Rock, Ariz.*
St. Vincent Infirmary	Little Rock, Ariz.
University Hospital	Little Rock, Ariz.
General Hospital of Riverside County	Arlington, Calif.
Herrick Memorial Hospital	Berkeley, Calif.
San Joaquin General Hospital	French Camp, Calif.
General Hospital of Fresno County	Fresno, Calif.
Glendale Sanitarium and Hospital	Glendale, Calif.
Loma Linda Sanitarium and Hospital	Loma Linda, Calif.
St. Mary's Long Beach Hospital	Long Beach, Calif.
Seaside Memorial Hospital	Long Beach, Calif.
California Hospital	*Los Angeles*

NONFEDERAL—Continued

Cedars of Lebanon Hospital	Los Angeles
Hospital of the Good Samaritan	Los Angeles
Los Angeles County Hospital	Los Angeles
Methodist Hospital of Southern California	Los Angeles
Presbyterian Hospital-Olmsted Memorial	Los Angeles
Queen of Angels Hospital	Los Angeles
St. Vincent's Hospital	Los Angeles
Santa Fe Coast Lines Hospital	Los Angeles
White Memorial Hospital	Los Angeles
Highland-Alameda County Hospital	Oakland, Calif.
Kaiser Foundation Hospital	Oakland, Calif.
Orange County General Hospital	Orange, Calif.
Collis P. and Howard *Huntington Memorial Hosp.*	*Pasadena, Calif.*
St. Luke Hospital	Pasadena, Calif.
Sacramento County Hospital	Sacramento, Calif.
San Bernardino County Charity Hospital	San Bernardino, Calif.
Mercy Hospital	San Diego, Calif.
San Diego County General Hospital	San Diego, Calif.
Children's Hospital	San Francisco
Franklin Hospital	San Francisco
French Hospital	San Francisco
Mary's Help Hospital	San Francisco
Mount Zion Hospital	San Francisco
St. Joseph's Hospital	San Francisco
St. Luke's Hospital	San Francisco
St. Mary's Hospital	San Francisco
San Francisco Hospital	San Francisco
Southern Paci	San Francisco
University of	San Francisco
Santa Clara County Hospital	San Jose, Calif.
Santa *Barbara Cottage* Hospital	*Santa Barbara, Calif.*
St. John's Hospital	Santa Monica, Calif.
Santa Monica Hospital	Santa Monica, Calif.
Harbor General Hospital	Torrance, Calif.
Glockner-Penrose Hospital	Colorado Spgs., Colo.
General Rose Memorial Hospital	Denver
Porter Sanitarium and Hospital	Denver
Presbyterian Hospital	Denver
St. Anthony Hospital	Denver
St. Joseph's Hospital	Denver
St. Luke's Hospital	Denver
University of Colorado Medical Center	
Colorado General Hospital	Denver
Denver General Hospital	Denver
Weld County General Hospital	Greeley, Colo.
Bridgeport Hospital	Bridgeport, Conn.
St. Vincent's Hospital	Bridgeport, Conn.
Danbury Hospital	Danbury, Conn.
Hartford Hospital	Hartford, Conn.
McCook Memorial Hospital	Hartford, Conn.
Mount Sinai Hospital	Hartford, Conn.
St. Francis Hospital	Hartford, Conn.
Manchester Memorial Hospital	Manchester, Conn.
Meriden Hospital	Meriden, Conn.
Middlesex Hospital	Middletown, Conn.
New Britain General Hospital	New Britain, Conn.
Grace-New Haven Community Hospital	New Haven, Conn.
Hospital of St. Raphael	New Haven, Conn.
Lawrence and Memorial Associated Hospitals	New London, Conn.
Norwalk Hospital	Norwalk, Conn.
William W. Backus Hospital	Norwich, Conn.
Stamford Hospital	Stamford, Conn.
St. Mary's Hospital	Waterbury, Conn.
Waterbury Hospital	Waterbury, Conn.
Delaware Hospital	Wilmington, Del.
Memorial Hospital	Wilmington, Del.
Wilmington General Hospital	Wilmington, Del.
Central Dispensary and Emergency Hospital	Washington, D. C.
Doctors Hospital	Washington, D. C.
Gallinger Municipal Hospital	Washington, D. C.
Garfield Memorial Hospital	Washington, D. C.
Providence Hospital	Washington, D. C.
Sibley Memorial Hospital	Washington, D. C.
Washington Sanitarium and Hospital	Washington, D. C.
Duval Medical Center	Jacksonville, Fla.
St. Luke's Hospital	Jacksonville, Fla.
St. Vincent's Hospital	Jacksonville, Fla.
Jackson Memorial Hospital	Miami, Fla.
Mount Sinai Hospital	Miami Beach, Fla.
St. Francis Hospital	Miami Beach, Fla.
Orange Memorial Hospital	Orlando, Fla.
Mound Park Hospital	St. Petersburg, Fla.
St. Mary's Hospital	West Palm Beach, Fla.
Athens General Hospital	Athens, Ga.
St. Mary's Hospital	Athens, Ga.
Crawford W. Long Memorial Hospital	Atlanta
Georgia Baptist Hospital	Atlanta
Piedmont Hospital	Atlanta
St. Joseph's Infirmary	Atlanta
University Hospital	Augusta, Ga.
Columbus City Hospital	Columbus, Ga.
MacNeal Memorial Hospital	Berwyn, Ill.
Alexian Brothers *Hospial*	Chicago

NONFEDERAL—Continued

American Hospital	Chicago
	Chicago
	Chicago
	Chicago
	Chicago
	Chicago
	Chicago
	Chicago
ospital	Chicago
	Chicago
Henrotin Hospital	Chicago
Holy Cross Hospital	Chicago
Hospital of St. Anthony de Padua	Chicago
Illinois Central Hospital	Chicago
Illinois Masonic Hospital	Chicago
Jackson Park Hospital	Chicago
Loretto Hospital	Chicago
Lutheran Deaconess Home and Hospital	Chicago
Mercy Hospital	Chicago
Michael Reese Hospital	Chicago
Mother Cabrini Memorial Hospital	Chicago
Mount Sinai Hospital	Chicago
Norwegian American Hospital	Chicago
Passavant Memorial Hospital	Chicago
Presbyterian Hospital	Chicago
Provident Hospital	Chicago
Ravenswood Hospital	Chicago
St.	Chicago
St.	Chicago
St.	Chicago
St.	Chicago
St. Luke's	Chicago
St. Mary of	Chicago
South Chica	Chicago
South Shore	Chicago
Swedish Co	Chicago
University of Chicago Clinics	Chicago
University of Illinois Research and Educational Hospitals	Chicago
Walther Me	Chicago
Wesley Me	Chicago
Women an	Chicago
Woodlawn	Chicago
Decatur and Macon County Hospital	Decatur, Ill.
St. Mary's Hospital	East St. Louis, Ill.
Memorial Hospital	Elmhurst, Ill.
Evanston Hospital	Evanston, Ill.
St. Francis Hospital	Evanston, Ill.
Little Company of Mary Hospital	Evergreen Park, Ill.
St. Joseph's Hospital	Joliet, Ill.
Moline Public Hospital	Moline, Ill.
Oak Park Hospital	Oak Park, Ill.
West Suburban Hospital	Oak Park, Ill.
Methodist Hospital of Central Illinois	Peoria, Ill.
St. Francis Hospital	Peoria, Ill.
Rockford Memorial Hospital	Rockford, Ill.
St. Anthony Hospital	Rockford, Ill.
Swedish American Hospital	Rockford, Ill.
Memorial Hospital	Springfield, Ill.
St. Francis Hospital	Beech Grove, Ind.
St. Catherine Hospital	East Chicago, Ind.
Protestant Deaconess Hospital	Evansville, Ind.
Lutheran Hospital	Fort Wayne, Ind.
St. Joseph Hospital	Fort Wayne, Ind.
Methodist Hospital	Gary, Ind.
St. Mary's Mercy Hospital	Gary, Ind.
St. Margaret Hospital	Hammond, Ind.
Indianapolis General Hospital	Indianapolis
Indiana University Medical Center	Indianapolis
Methodist Hospital	Indianapolis
St. Vincent's Hospital	Indianapolis
St. Elizabeth Hospital	La Fayette, Ind.
St. Joseph Hospital	Mishawaka, Ind.
Ball Memorial Hospital	Muncie, Ind.
Memorial Hospital	South Bend, Ind.
St. Joseph's Hospital	South Bend, Ind.
Mercy Hospital	Cedar Rapids, Ia.
St. Luke's Methodist Hospital	Cedar Rapids, Ia.
Mercy Hospital	Council Bluffs, Ia.
Mercy Hospital	Davenport, Ia.
Broadlawns Polk County Hospital	Des Moines, Ia.
Iowa Lutheran Hospital	Des Moines, Ia.
Iowa Methodist Hospital	Des Moines, Ia.
Mercy Hospital	Des Moines, Ia.
University Hospitals	Iowa City, Ia.
St. Joseph Mercy Hospital	Sioux City, Ia.
Bethany Hospital	Kansas City, Kans.
Providence Hospital	Kansas City, Kans.
St. Margaret Hospital	Kansas City, Kans.
University of Kansas Medical Center	Kansas City, Kans.
St. Francis Hospital	Wichita, Kans.
Wesley Hospital	Wichita, Kans.
Wichita-St. Joseph Hospital	Wichita, Kans.
St. Elizabeth Hospital	Covington, Ky.
Good Samaritan Hospital	Lexington, Ky.
St. Joseph Hospital	Lexington, Ky.
Kentucky Baptist Hospital	Louisville
Louisville C	Louisville
Norton Me	Louisville
St. Anthon	Louisville
St. Joseph	Louisville
SS. Mary a	Louisville
Baptist Hospital	Alexandria, La.
Baton Rouge General Hospital	Baton Rouge, La.
Charity Hospital of Louisiana	New Orleans

Hotel Dieu-Sisters Hospital	New Orleans
Mercy Hospital	New Orleans
Southern Baptist Hospital	New Orleans
Touro Infirmary	New Orleans
Confederate Memorial Medical Center	Shreveport, La.
North Louisiana	Shreveport, La.
Eastern Maine Ge	Bangor, Me.
Central Maine Ge	Lewiston, Me.
St. Mary's Gener	Lewiston, Me.
Maine Ge	Portland, Me.
Baltimore	Baltimore
Bon Seco	Baltimore
Church H	Baltimore
Franklin	Baltimore
Lutheran	Baltimore
Maryland General Hospital	Baltimore
Mercy Hos	Baltimore
St. Agnes	Baltimore
St. Joseph	Baltimore
Sinai Hospital	Baltimore
South Baltimo	Baltimore
Union Memori	Baltimore
University Hospital	Baltimore
Suburban H	Bethesda, Md.
Prince Georg	Cheverly, Md.
Washington	Hagerstown, Md.
Beverly Hospital	Beverly, Mass.
Carney Hospital	Boston
New Engla	Boston
St. Elizab	Brighton, Mass.
Brockton	Brockton, Mass.
Cambridge	Cambridge, Mass.
Mount Au	Cambridge, Mass.
Truesdale	Fall River, Mass.
Union Hospital	Fall River, Mass.
Burbank Hospital	Fitchburg, Mass.
Holyoke Hospital	Holyoke, Mass.
Lawrence Gener	Lawrence, Mass.
Lowell General	Lowell, Mass.
St. John's Hospital	Lowell, Mass.
St. Joseph's Hospital	Lowell, Mass.
Lynn Hospital	Lynn, Mass.
	New Bedford, Mass.
	Newton Lower Falls, Mass.
Pittsfield General Hospital	Pittsfield, Mass.
St. Luke's Hospital	Pittsfield, Mass.
Quincy City Hospital	Quincy, Mass.
Salem Hospital	Salem, Mass.
Mercy Hospital	Springfield, Mass.
Springfield Hospital	Springfield, Mass.
Wesson Memorial Hospital	Springfield, Mass.
Waltham Hospital	Waltham, Mass.
Memorial Hospital	Worcester, Mass.
St. Vincent Hospital	Worcester, Mass.
Worcester City Hospital	Worcester, Mass.
St. Joseph's Mercy Hospital	Ann Arbor, Mich.
Leila Y. Post Montgomery Hospital	Battle Creek, Mich.
City of Detroit Receiving Hospital	Detroit
Detroit Memorial Hospital	Detroit
Evangelical Deaconess Hospital	Detroit
Grace Hospital	Detroit
Harper Hospital	Detroit
Jennings Memorial Hospital	Detroit
Mt. Carmel Mercy Hospital	Detroit
Providence Hospital	Detroit
St. John Hospital	Detroit
St. Joseph Mercy Hospital	Detroit
Woman's Hospital	Detroit
Wayne County General Hospital and Infirmary	Eloise, Mich.
Hurley Hospital	Flint, Mich.
McLaren General Hospital	Flint, Mich.
St. Joseph Hospital	Flint, Mich.
Blodgett Memorial Hosptial	Grand Rapids, Mich.
Butterworth Hospital	Grand Rapids, Mich.
St. Mary's Hospital	Grand Rapids, Mich.
Bon Secours Hospital	Grosse Pointe, Mich.
Highland Park General Hospital	Highland Park, Mich.
Borgess Hospital	Kalamazoo, Mich.
Bronson Methodist Hospital	Kalamazoo, Mich.
Edward W. Sparrow Hospital	Lansing, Mich.
St. Lawrence Hospital	Lansing, Mich.
Hackley Hospital	Muskegon, Mich.
Pontiac General Hospital	Pontiac, Mich.
St. Joseph Mercy Hospital	Pontiac, Mich.
Saginaw General Hospital	Saginaw, Mich.
St. Luke's Hospital	Saginaw, Mich.
St. Mary's Hospital	Saginaw, Mich.
James Decker Munson Hospital	Traverse City, Mich.
St. Luke's Hospital	Duluth, Minn.
St. Mary's Hospital	Duluth, Minn.
Abbott Hospital and Janney Children's Hospital	Minneapolis
Asbury Methodist Hospital	Minneapolis
Lutheran Deaconess Home and Hospital	Minneapolis
Minneapolis General Hospital	Minneapolis
Mount Sinai Hospital	Minneapolis
Northwestern Hospital	Minneapolis
St. Barnabas Hospital	Minneapolis
St. Mary's Hospital	Minneapolis
Swedish Hospital	Minneapolis
Ancker Hospital	St. Paul
Bethesda Hospital	St. Paul
Charles T. Miller Hospital	St. Paul
St. Joseph's Hospital	St. Paul
St. Luke's Hospital	St. Paul

NONFEDERAL—Continued

Mississippi Baptist Hospital	Jackson, Miss.
Mercy Hospital-Street Memorial	Vicksburg, Miss.
St. Louis County Hospital	Clayton, Mo.
Kansas City General Hospital No. 1	Kansas City, Mo.
Kansas City General Hospital No. 2	Kansas City, Mo.
Menorah Hospital Medical Center	Kansas City, Mo.
Research Hospital	Kansas City, Mo.
St. Joseph Hospital	Kansas City, Mo.
St. Luke's Hospital	Kansas City, Mo.
St. Mary's Hospital	Kansas City, Mo.
Trinity Lutheran Hospital	Kansas City, Mo.
Missouri Methodist Hospital	St. Joseph, Mo.
St. Joseph's Hospital	St. Joseph, Mo.
Christian Hospital	St. Louis
De Paul Hospital	St. Louis
Evangelical Deaconess Hospital	St. Louis
Homer G. Phillips Hospital	St. Louis
Jewish Hospital	St. Louis
Missouri Baptist Hospital	St. Louis
St. Anthony's Hospital	St. Louis
St. John's Hospital	St. Louis
St. Louis City Hospital	St. Louis
St. Luke's Hospital	St. Louis
St. Mary's Group of Hospitals	St. Louis
St. James Hospital	Butte, Mont.
Montana Deaconess Hospital	Great Falls, Mont.
Bryan Memorial Hospital	Lincoln, Neb.
Lincoln General Hospital	Lincoln, Neb.
St. Elizabeth Hospital	Lincoln, Neb.
Bishop Clarkson Memorial Hospital	Omaha
Creighton Memorial-St. Joseph Hospital	Omaha
Immanuel Hospital	Omaha
Nebraska Methodist Hospital	Omaha
St. Catherine's Hospital	Omaha
University of Nebraska Hospital	Omaha
Mary Hitchcock Memorial Hospital	Hanover, N. H.
Atlantic City Hospital	Atlantic City, N. J.
Bayonne Hospital and Dispensary	Bayonne, N. J.
Cooper Hospital	Camden, N. J.
West Jersey Hospital	Camden, N. J.
East Orange General Hospital	East Orange, N. J.
Alexian Brothers Hospital	Elizabeth, N. J.
Elizabeth General Hospital and Dispensary	Elizabeth, N. J.
St. Elizabeth Hospital	Elizabeth, N. J.
Englewood Hospital	Englewood, N. J.
Hackensack Hospital	Hackensack, N. J.
St. Mary's Hospital	Hoboken, N. J.
Christ Hospital	Jersey City, N. J.
Medical Center—Jersey City Hospital	Jersey City, N. J.
St. Francis Hospital	Jersey City, N. J.
Monmouth Memorial Hospital	Long Branch, N. J.
Mountainside Hospital	Montclair, N. J.
All Souls Hospital	Morristown, N. J.
Morristown Memorial Hospital	Morristown, N. J.
Fitkin Memorial Hospital	Neptune, N. J.
Hospital of St. Barnabas and for Women and Children	Newark, N. J.
Newark Beth Israel Hospital	Newark, N. J.
Newark City Hospital	Newark, N. J.
Presbyterian Hospital	Newark, N. J.
St. Michael's Hospital	Newark, N. J.
St. Peter's General Hospital	New Brunswick, N. J.
Orange Memorial Hospital	Orange, N. J.
Bergen Pines County Hospital	Paramus, N. J.
Passaic General Hospital	Passaic, N. J.
St. Mary's Hospital	Passaic, N. J.
Barnert Memorial Hospital	Paterson, N. J.
Paterson General Hospital	Paterson, N. J.
St. Joseph Hospital	Paterson, N. J.
Perth Amboy General Hospital	Perth Amboy, N. J.
Muhlenberg Hospital	Plainfield, N. J.
Overlook Hospital	Summit, N. J.
Holy Name Hospital	Teaneck, N. J.
Mercer Hospital	Trenton, N. J.
St. Francis Hospital	Trenton, N. J.
William McKinley Memorial Hospital	Trenton, N. J.
North Hudson Hospital	Weehawken, N. J.
Albany Hospital	Albany, N. Y.
Memorial Hospital	Albany, N. Y.
St. Peter's Hospital	Albany, N. Y.
Binghamton City Hospital	Binghamton, N. Y.
Beth-El Hospital	Brooklyn
Brooklyn Hospital	Brooklyn
Coney Island Hospital	Brooklyn
Cumberland Hospital	Brooklyn
Greenpoint Hospital	Brooklyn
Jewish Hospital	Brooklyn
Kings County Hospital Center	Brooklyn
Long Island College Hospital	Brooklyn
Maimonides Hospital	Brooklyn
Methodist Hospital	Brooklyn
Norwegian Lutheran Deaconesses' Home and Hosp.	Brooklyn
Prospect Heights Hospital	Brooklyn
St. Catherine's Hospital	Brooklyn
St. John's Episcopal Hospital	Brooklyn
St. Mary's Hospital	Brooklyn

NONFEDERAL—Continued

Unity Hospital	Brooklyn
Wyckoff Heights Hospital	Brooklyn
Buffalo General Hospital	Buffalo
Deaconess Hospital	Buffalo
Edward J. Meyer Memorial Hospital	Buffalo
Mercy Hospital	Buffalo
Millard Fillmore Hospital	Buffalo
Sisters of Charity Hospital	Buffalo
Mary Imogene Bassett Hospital	Cooperstown, N. Y.
Arnot Ogden Memorial Hospital	Elmira, N. Y.
St. Joseph's Hospital	Elmira, N. Y.
Flushing Hospital and Dispensary	Flushing, N. Y.
North Country Community Hospital	Glen Cove, N. Y.
Glens Falls Hospital	Glens Falls, N. Y.
Meadowbrook Hospital	Hempstead, N. Y.
Jamaica Hospital	Jamaica, N. Y.
Mary Immaculate Hospital	Jamaica, N. Y.
Queens General Hospital	Jamaica, N. Y.
Charles S. Wilson Memorial Hospital	Johnson City, N. Y.
Our Lady of Victory Hospital	Lackawanna, N. Y.
St. John's Long Island City Hospital	Long Island City, N. Y.
Nassau Hospital	Mineola, N. Y.
Northern Westchester Hospital	Mount Kisco, N. Y.
Mount Vernon Hospital	Mount Vernon, N. Y.
St. Luke's Hospital	Newburgh, N. Y.
New Rochelle Hospital	New Rochelle, N. Y.
Beth David Hospital	New York City
Beth Israel Hospital	New York City
Bronx Hospital	New York City
Columbus Hospital	New York City
Fordham Hospital	New York City
French Hospital	New York City
Harlem Hospital	New York City
Hospital for Joint Diseases	New York City
Jewish Memorial Hospital	New York City
Knickerbocker Hospital	New York City
Lebanon Hospital	New York City
Lenox Hill Hospital	New York City
Metropolitan Hospital	New York City
Morrisania City Hospital	New York City
Mother Cabrini Memorial Hospital	New York City
Mount Sinai Hospital	New York City
New York City Hospital	New York City
New York Infirmary	New York City
New York Polyclinic Medical School and Hospital	New York City
St. Clare's Hospital	New York City
St. Francis Hospital	New York City
St. Vincent's Hospital	New York City
Sydenham Hospital	New York City
Mount St. Mary's Hospital	Niagara Falls, N. Y.
United Hospital	Port Chester, N. Y.
St. Francis Hospital	Poughkeepsie, N. Y.
Vassar Brothers Hospital	Poughkeepsie, N. Y.
Genesee Hospital	Rochester, N. Y.
Highland Hospital	Rochester, N. Y.
Park Avenue Hospital	Rochester, N. Y.
Rochester General Hospital	Rochester, N. Y.
St. Mary's Hospital	Rochester, N. Y.
Strong Memorial—Rochester Municipal Hospitals	Rochester, N. Y.
Ellis Hospital	Schenectady, N. Y.
St. Clare's Hospital	Schenectady, N. Y.
St. Vincent's Hospital	Staten Island, N. Y.
Staten Island Hospital	Staten Island, N. Y.
St. Joseph's Hospital	Syracuse, N. Y.
State University of New York Medical Center	Syracuse, N. Y.
St. Mary's Hospital	Troy, N. Y.
Samaritan Hospital	Troy, N. Y.
Grasslands Hospital	Valhalla, N. Y.
St. Agnes Hospital	White Plains, N. Y.
White Plains Hospital	White Plains, N. Y.
St. John's Riverside Hospital	Yonkers, N. Y.
St. Joseph's Hospital	Yonkers, N. Y.
Yonkers General Hospital	Yonkers, N. Y.
North Carolina Memorial Hospital	Chapel Hill, N. C.
Charlotte Memorial Hospital	Charlotte, N. C.
Mercy Hospital	Charlotte, N. C.
Lincoln Hospital	Durham, N. C.
Watts Hospital	Durham, N. C.
Rex Hospital	Raleigh, N. C.
St. Agnes Hospital	Raleigh, N. C.
James Walker Memorial Hospital	Wilmington, N. C.
City Memorial Hospital	Winston-Salem, N. C.
Kate Bitting Reynolds Memorial Hospital	Winston-Salem, N. C.
St. John's Hospital	Fargo, N. D.
St. Luke's Hospital	Fargo, N. D.
Grand Forks Deaconess Hospital	Grand Forks, N. D.
City Hospital	Akron, Ohio
Peoples Hospital	Akron, Ohio
St. Thomas Hospital	Akron, Ohio
Aultman Hospital	Canton, Ohio
Mercy Hospital	Canton, Ohio
Bethesda Hospital	Cincinnati
Christ Hospital	Cincinnati
Cincinnati General Hospital	Cincinnati
Deaconess Hospital	Cincinnati

NONFEDERAL—Continued

Good Samaritan Hospital	Cincinnati
Jewish Hospital	Cincinnati
St. Mary's Hospital	Cincinnati
City Hospital	Cleveland
Evangelical Deaconess Hospital	Cleveland
Fairview Park Hospital	Cleveland
Lutheran Hospital	Cleveland
Mount Sinai Hospital	Cleveland
St. Alexis Hospital	Cleveland
St. John's Hospital	Cleveland
St. Luke's Hospital	Cleveland
St. Vincent Charity Hospital	Cleveland
University Hospitals	Cleveland
Doctors Hospital	Cleveland Heights, Ohio
Grant Hospital	Columbus, Ohio
Mount Carmel Hospital	Columbus, Ohio
University Hospitals	
University Hospital	Columbus, Ohio
White Cross Hospital	Columbus, Ohio
Good Samaritan Hospital	Dayton, Ohio
Miami Valley Hospital	Dayton, Ohio
St. Elizabeth Hospital	Dayton, Ohio
Huron Road Hospital	East Cleveland, Ohio
Elyria Memorial Hospital	Elyria, Ohio
Euclid-Glenville Hospital	Euclid, Ohio
Marymount Hospital	Garfield Heights, Ohio
Mercy Hospital	Hamilton, Ohio
Lakewood Hospital	Lakewood, Ohio
Lima Memorial Hospital	Lima, Ohio
St. Rita's Hospital	Lima, Ohio
Mercy Hospital	Springfield, Ohio
Springfield City Hospital	Springfield, Ohio
Flower Hospital	Toledo
Maumee Valley Hospital	Toledo
Mercy Hospital	Toledo
Riverside Hospital	Toledo
St. Vincent's Hospital	Toledo
Toledo Hospital	Toledo
St. Elizabeth Hospital	Youngstown, Ohio
Youngstown Hospital	Youngstown, Ohio
Mercy Hospital, Oklahoma City General	Oklahoma City
St. Anthony Hospital	Oklahoma City
University Hospitals	Oklahoma City
Wesley Hospital	Oklahoma City
Hillcrest Memorial Hospital	Tulsa, Okla.
St. John's Hospital	Tulsa, Okla.
Sacred Heart General Hospital	Eugene, Ore.
Emanuel Hospital	Portland, Ore.
Good Samaritan Hospital	Portland, Ore.
Portland Sanitarium and Hospital	Portland, Ore.
Providence Hospital	Portland, Ore.
St. Vincent's Hospital	Portland, Ore.
University of Oregon Medical School Hospitals and Clinics	Portland, Ore.
Abington Memorial Hospital	Abington, Pa.
Allentown Hospital	Allentown, Pa.
Sacred Heart Hospital	Allentown, Pa.
Altoona Hospital	Altoona, Pa.
Mercy Hospital	Altoona, Pa.
St. Luke's Hospital	Bethlehem, Pa.
Bryn Mawr Hospital	Bryn Mawr, Pa.
Chester Hospital	Chester, Pa.
George F. Geisinger Memorial Hospital	Danville, Pa.
Fitzgerald Mercy Hospital	Darby, Pa.
Easton Hospital	Easton, Pa.
Hamot Hospital	Erie, Pa.
St. Vincent's Hospital	Erie, Pa.
Westmoreland Hospital	Greensburg, Pa.
Harrisburg Hospital	Harrisburg, Pa.
Harrisburg Polyclinic Hospital	Harrisburg, Pa.
St. Joseph	Hazleton, Pa.
Conemaugh	Johnstown, Pa.
Nesbitt Men	Kingston, Pa.
Lancaster General Hospital	Lancaster, Pa.
St. Joseph's Hospital	Lancaster, Pa.
McKeesport Hospital	McKeesport, Pa.
Montgomery Hospital	Norristown, Pa.
Sacred Heart Hospital	Norristown, Pa.
Albert Einstein Medical Center	
Northern Division	Philadelphia
Southern Division	Philadelphia
Chestnut Hill Hospital	Philadelphia
Episcopal Hospital	Philadelphia
Frankford Hospital	Philadelphia
Germantown Dispensary and Hospital	Philadelphia
Graduate Hosp. of the University of Pennsylvania	Philadelphia
Hahnemann Medical College and Hospital	Philadelphia
Hospital of the University of Pennsylvania	Philadelphia
Hospital of the Woman's Medical College of Pennsylvania	Philadelphia
Jefferson Medical College Hospital	Philadelphia
Lankenau Hospital	Philadelphia
Memorial Hospital	Philadelphia
Mercy-Douglass Hospital	Philadelphia
Methodist Episcopal Hospital	Philadelphia
Misericordia Hospital	Philadelphia
Nazareth Hospital	Philadelphia
Pennsylvania Hospital	Philadelphia
Philadelphia General Hospital	Philadelphia
Presbyterian Hospital	Philadelphia
St. Agnes Hospital	Philadelphia

NONFEDERAL—Continued

St. Joseph's Hospital	Philadelphia
St. Luke's and Children's Medical Center	Philadelphia
St. Mary's Hospital	Philadelphia
Temple University Hospital	Philadelphia
Woman's Hospital	Philadelphia
Allegheny General Hospital	Pittsburgh
Mercy Hospital	Pittsburgh
Montefiore Hospital	Pittsburgh
Pittsburgh Hospital	Pittsburgh
Presbyterian Hospital	Pittsburgh
St. Francis Hospital	Pittsburgh
St. John's General Hospital	Pittsburgh
St. Joseph's Hospital and Dispensary	Pittsburgh
St Margaret Memorial Hospital	Pittsburgh
South Side	Pittsburgh
Western Per	Pittsburgh
Community	Reading, Pa.
Reading Hospital	Reading, Pa.
St. Joseph's	Reading, Pa.
Robert Pack	Sayre, Pa.
Scranton St	Scranton, Pa.
Sewickley Va	Sewickley, Pa.
Uniontown Hospital	Uniontown, Pa.
Washington Hospital	Washington, Pa.
Chester County Hospital	West Chester, Pa.
Mercy Hospital	Wilkes-Barre, Pa.
Wilkes-Barre General Hospital	Wilkes-Barre, Pa.
Columbia Hospital	Wilkinsburg, Pa.
Divine Providence Hospital	Williamsport, Pa.
Williamsport Hospital	Williamsport, Pa
York Hospital	York, Pa.
Newport Hospital	Newport, R. I.
Memorial Hospital	Pawtucket, R. I.
Rhode Island Hospital	Providence, R. I.
Roger Williams General Hospital	Providence, R. I.
St. Joseph's Hospital	Providence, R. I.
Roper Hospital	Charleston, S. C.
Columbia Hospital	Columbia, S. C.
McLeod Infirmary	Florence, S. C.
Greenville General Hospital	Greenville, S. C.
Orangeburg Regional Hospital	Orangeburg, S. C.
Spartanburg General Hospital	Spartanburg, S. C.
McKennan Hospital	Sioux Falls, S. D.
Sioux Valley Hospital	Sioux Falls, S. D.
Sacred Heart Hospital	Yankton, S. D.
Baroness Erlanger Hospital	Chattanooga, Tenn.
Holston Valley Community Hospital	Kingsport, Tenn.
East Tennessee Baptist Hospital	Knoxville, Tenn.
Fort Sanders Hospital	Knoxville, Tenn.
Knoxville General Hospital	Knoxville, Tenn.
St. Mary's Memorial Hospital	Knoxville, Tenn.
Baptist Memorial Hospital	Memphis
City of Memphis Hospitals	Memphis
Methodist Hospital	Memphis
St. Joseph Hospital	Memphis
Hubbard Hospital	Nashville, Tenn.
Mid-State Baptist Hospital	Nashville, Tenn.
Nashville General Hospital	Nashville, Tenn.
St. Thomas Hospital	Nashville, Tenn.
Oakridge Hospital	Oak Ridge, Tenn.
Brackenridge Hospital	Austin, Tex.
Memorial Hospital	Corpus Christi, Tex.
Baylor University Hospital	Dallas, Tex.
Methodist Hospital	Dallas, Tex.
Parkland Hospital	Dallas, Tex.
St. Paul's Hospital	Dallas, Tex.
El Paso General Hospital	El Paso, Tex.
City-County Hospital	Fort Worth, Tex.
Harris Hospital	Fort Worth, Tex.
St. Joseph's Hospital	Fort Worth, Tex.
University of Texas Medical Branch Hospitals	Galveston, Tex.
Hermann Hospital	Houston, Tex.
Jefferson Davis Hospital	Houston, Tex.
Methodist Hospital	Houston, Tex.
St. Joseph's Hospital	Houston, Tex.
Baptist Memorial Hospital	San Antonio, Tex.
Robert B. Green Memorial Hospital	San Antonio, Tex.
Santa Rosa Hospital	San Antonio, Tex.
Kings Daughters Hospital	Temple, Tex.
Scott and White Memorial Hospital	Temple, Tex.
Providence Hospital	Waco, Tex.
Wichita Falls Clinic Hospital	Wichita Falls, Tex.
St. Benedict's Hospital	Ogden, Utah
Thomas D. Dee Memorial Hospital	Ogden, Utah
Dr. W. H. Groves Latter-Day-Saints Hospital	Salt Lake City
Holy Cross Hospital	Salt Lake City
St. Mark's Hospital	Salt Lake City
Salt Lake County General Hospital	Salt Lake City
Bishop de Goesbriand Hospital	Burlington, Vt.
Mary Fletcher Hospital	Burlington, Vt.
Johnston Memorial Hospital	Abington, Va.
Alexandria Hospital	Alexandria, Va.
University of Virginia Hospital	Charlottesville, Va.
Memorial Hospital	Danville, Va.
Mary Immaculate Hospital	Newport News, Va.
Riverside Hospital	Newport News, Va.
De Paul Hospital	Norfolk, Va.
Norfolk General Hospital	Norfolk, Va.
Johnston-Willis Hospital	Richmond, Va.
Medical College of Virginia—Hospital Division (Memorial, Dooley and St. Philip Hospitals)	Richmond, Va.
Stuart Circle Hospital	Richmond, Va.

NONFEDERAL—Continued

Lewis Gale Hospital	Roanoke, Va.
Memorial and Crippled Children's Hospital	Roanoke, Va.
Winchester Memorial Hospital	Winchester, Va.
Columbus Hospital	Seattle, Wash.
Doctors Hospital	Seattle, Wash.
King County Hospital Unit No. 1 (Harborview)	Seattle, Wash.
Providence Hospital	Seattle, Wash.
Seattle General Hospital	Seattle, Wash.
Swedish Hospital	Seattle, Wash.
Virginia Mason Hospital	Seattle, Wash.
Deaconess Hospital	Spokane, Wash.
Sacred Heart Hospital	Spokane, Wash.
St. Luke's Hospital	Spokane, Wash.
Pierce County Hospital	Tacoma, Wash.
St. Joseph Hospital	Tacoma, Wash.
Tacoma General Hospital	Tacoma, Wash.
Bluefield Sanitarium	Bluefield, W. Va.
Charleston General Hospital	Charleston, W. Va.
Kanawha Valley Hospital	Charleston, W. Va.
Memorial Hospital	Charleston, W. Va.
St. Mary's Hospital	Huntington, W. Va.
Camden-Clark Memorial Hospital	Parkersburg, W. Va.
St. Joseph's Hospital	Parkersburg, W. Va.
Ohio Valley General Hospital	Wheeling, W. Va.
Wheeling Hospital	Wheeling, W. Va.
Luther Hospital	Eau Claire, Wis.
St. Agnes Hospital	Fond du Lac, Wis.
Mercy Hospital	Janesville, Wis.
La Crosse Lutheran Hospital	La Crosse, Wis.
St. Francis Hospital	La Crosse, Wis.
Madison General Hospital	Madison, Wis.
Methodist Hospital	Madison, Wis.
St. Mary's Hospital	Madison, Wis.
University Hospitals	Madison, Wis.
St. Joseph's Hospital	Marshfield, Wis.
Columbia Hospital	Milwaukee
Evangelical Deaconess Hospital	Milwaukee
Milwaukee County Hospital	Milwaukee
Milwaukee Hospital	Milwaukee
Misericordia Hospital	Milwaukee
Mount Sinai Hospital	Milwaukee
St. Joseph Hospital	Milwaukee
St. Luke's Hospital	Milwaukee
St. Mary's Hospital	Milwaukee
St. Michael Hospital	Milwaukee
Theda Clark Memorial Hospital	Neenah, Wis.
Mercy Hospital	Oshkosh, Wis.
St. Mary's Hospital	Wausau, Wis.
Queen's Hospital	Honolulu, T. H.
St. Francis Hospital	Honolulu, T. H.
Arecibo District Hospital	Arecibo, P. R.
Fajardo District Hospital	Fajardo, P. R.
Presbyterian Hospital	San Juan, P. R.
San Juan City Hospital	San Juan, P. R.

ROTATING (MED. MAJOR)

Number of Approved Programs, 16

Greenwich Hospital	Greenwich, Conn.
George Washington University Hospital	Washington, D. C.
Memorial Hospital	Elmhurst, Ill.
North Louisiana Sanitarium	Shreveport, La.
Holyoke Hospital	Holyoke, Mass.
University Hospital	Ann Arbor, Mich.
Henry Ford Hospital	Detroit
Missouri Baptist Hospital	St. Louis
St. Louis City Hospital	St. Louis
Misericordia Hospital	New York City
Holston Valley Community Hospital	Kingsport, Tenn.
Lynchburg General Hospital	Lynchburg, Va.
Riverside Hospital	Newport News, Va.
Norfolk General Hospital	Norfolk, Va.
Jefferson Hospital	Roanoke, Va.
Memorial Hospital	Charleston, W. Va.

ROTATING (SURG. MAJOR)

Number of Approved Programs, 21

Greenwich Hospital	Greenwich, Conn.
George Washington University Hospital	Washington, D. C.
Mount Sinai Hospital	Chicago
Ravenswood Hospital	Chicago
Memorial Hospital	Elmhurst, Ill.
Mercy Hospital	Iowa City, Iowa
North Louisiana Sanitarium	Shreveport, La.
T. E. Schumpert Memorial Hospital	Shreveport, La.
Holyoke Hospital	Holyoke, Mass.
University Hospital	Ann Arbor, Mich.
Henry Ford Hospital	Detroit
Missouri Baptist Hospital	St. Louis
Holy Name Hospital	Teaneck, N. J.
Bellevue Hospital Center First Surgical Division—Columbia University	New York City
Misericordia Hospital	New York City
Holston Valley Community Hospital	Kingsport, Tenn.
Lynchburg General Hospital	Lynchburg, Va.
Riverside Hospital	Newport News, Va.
Norfolk General Hospital	Norfolk, Va.
Jefferson Hospital	Roanoke, Va.
Memorial Hospital	Charleston, W. Va.

ROTATING (PED. MAJOR)

Number of Approved Programs, 6

Memorial Hospital	Elmhurst, Ill.
University Hospital	Ann Arbor, Mich.
Misericordia Hospital	New York City
Riverside Hospital	Newport News, Va.
Norfolk General Hospital	Norfolk, Va.
Memorial Hospital	Charleston, W. Va.

ROTATING (OB.-GYN. MAJOR)

Number of Approved Programs, 8

Ravenswood Hospital	Chicago
Memorial Hospital	Elmhurst, Ill.
University Hospital	Ann Arbor, Mich.
Misericordia Hospital	New York City
Woman's Hospital	Philadelphia
Riverside Hospital	Newport News, Va.
Norfolk General Hospital	Norfolk, Va.
Memorial Hospital	Charleston, W. Va.

OTHER ROTATING

Number of Approved Programs, 14

University of Colorado Medical Center Denver General Hospital Community Rotating	Denver, Colo.
George Washington University Hospital Rotating (Path.-Major)	Washington, D. C.
Grady Memorial Hospital General Practice	Atlanta, Ga.
Macon Hospital Rotating (Gen. Prac.-Major)	Macon, Ga.
University Hospital Rotating (Neurol.-Major) Rotating (Derm.-Major) Rotating (Psych.-Major) Rotating (Anes.-Major) Rotating (Otology-Major) Rotating (Ophthal.-Major) Rotating (Phys. Med. Rehab.-Major) Rotating (Gen. Prac.-Major) Rotating (Path.-Major)	Ann Arbor, Mich.
University of Oklahoma Hospital General Practice	Oklahoma City

MIXED

Number of Approved Programs, 24

Veterans Admin. Hospital, Nashville, Tenn.; Int. Med.-Surg.
University of California Hospital, San Francisco; Med.-Ob.-Gyn.; Med.-Surg.; Surg.-Ped.; Ped.-Ob.-Gyn.
Corwin Hospital, Pueblo, Colo.; Med.-Ob.-Gyn.-Surg.
William Booth Memorial Hospital, Covington, Ky.; Med.-Ob.-Gyn.-Surg.
Hospital for Women, Baltimore; Med.-Ob.-Gyn.
Faulkner Hospital, Boston; Med.-Surg.-Ob.-Gyn.
Lutheran Hospital, St. Louis; Med.-Surg.-Ob.-Gyn.
Albany Hospital, Albany, N. Y.; Med.-Surg.
Mary Imogene Bassett Hospital, Cooperstown, N. Y.; Med.-Surg.
Bellevue Hospital Center
  First Medical Division—Columbia University, New York City; Med.-Surg.-Chest.; Med.-Path.-Chest; Med.-Chest.
  Second Medical Division—Cornell University, New York City; Med.-Path.
  Third Medical Division—New York University College of Medicine, New York City
  Third Surgical Division—New York University College of Medicine, New York City; Med.-Surg.
Montefiore Hospital, New York City; Med.-Surg.-Neur.-Pul.-Neoplastic.
Roosevelt Hospital, New York City; Med.-Ped.-Surg.; Surg.-Gyn.-Med.
St. Luke's Hospital, New York City; Med.-Surg.
Strong Memorial-Rochester Municipal Hospitals, Rochester, N. Y.; Surg.-Ob.-Gyn.
General Hospital, Syracuse, N. Y.; Med.-Surg.-Ob.-Gyn.
Duke Hospital, Durham, N. C.; Obst.-Ped.
James Walker Memorial Hospital, Wilmington, N. C.; Ob.-Gyn.-Ped.-Surg.
North Carolina Baptist Hospital, Winston-Salem; Ob.-Gyn.-Ped.
Bethesda Hospital, Cincinnati; Surg.-Obst.; Med.-Obst.
Holston Valley Community Hospital, Kingsport, Tenn.; Ob.-Gyn.-Ped.
Salt Lake County General Hospital, Salt Lake City; Surg.-Gyn.

STRAIGHT

Total Number of Approved Programs, 168

INTERNAL MEDICINE

Number of Approved Programs, 72

Veterans Admin. Hospital	Little Rock, Ark.
Veterans Admin. Hospital	Long Beach, Calif.
Veterans Admin. Hospital	Atlanta, Ga.
Veterans Admin. Hospital	Nashville, Tenn.
Veterans Admin. Hospital	Dallas, Tex.
Veterans Admin. Hospital	McKinney, Tex.
Veterans Admin. Hospital	Salt Lake City, Utah
Veterans Admin. Hospital	Richmond, Va.
Veterans Admin. Hospital	Seattle, Wash.
Stanford University Hospitals	San Francisco
University of California Hospital	San Francisco
Grace-New Haven Community Hospital	New Haven, Conn.
Georgetown University Hospital	Washington, D. C.
Grady Memorial Hospital	Atlanta
Emory University Hospital	Emory University, Ga.
Michael Reese Hospital	Chicago
Ravenswood Hospital	Chicago
Louisville General Hospital	Louisville
Baltimore City Hospital	Baltimore
Church Home and Hospital	Baltimore
Johns Hopkins Hospital	Baltimore
Sinai Hospital	Baltimore
Beth Israel Hospital	Boston
Boston City Hospital	Boston
Massachusetts General Hospital	Boston
Massachusetts Memorial Hospitals	Boston
New England Center Hospital	Boston
Peter Bent Brigham Hospital	Boston
Northwestern Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
Barnes Hospital	St. Louis
St. Louis City Hospital	St. Louis
St. Mary's Group of Hospitals	St. Louis
Medical Center—Jersey City Hospital	Jersey City, N. J.
Albany Hospital	Albany, N. Y.
Cumberland Hospital	Brooklyn
Kings County Hospital Center	Brooklyn
Long Island College Hospital	Brooklyn
Maimonides Hospital	Brooklyn
Methodist Hospital	Brooklyn
St. John's Episcopal Hospital	Brooklyn
Buffalo General Hospital	Buffalo, N. Y.
Mary Imogene Bassett Hospital	Cooperstown, N. Y.
Mary Immaculate Hospital	Jamaica, N. Y.
Charles S. Wilson Memorial Hospital	Johnson City, N. Y.
Bellevue Hospital Center	
Second Medical Division—Cornell University	New York City
Third Medical Division—New York University College of Medicine	New York City
Fourth Medical Division—New York University Postgraduate Medical School	New York City
Knickerbocker Hospital	New York City
Lebanon Hospital	New York City
New York Hospital	New York City
New York University-Bellevue Medical Center University Hospital	New York City
Presbyterian Hospital	New York City
St. Clare's Hospital	New York City
St. Vincent's Hospital	New York City
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
State University of New York Medical Center	Syracuse, N. Y.
North Carolina Memorial Hospital	Chapel Hill, N. C.
Duke Hospital	Durham, N. C.
Watts Hospital	Durham, N. C.
North Carolina Baptist Hospital	Winston-Salem, N. C.
University Hospitals	Cleveland
Woman's Hospital	Philadelphia
Baptist Memorial Hospital	Memphis
St. Thomas Hospital	Nashville, Tenn.
Vanderbilt University Hospital	Nashville, Tenn.
Baylor University Hospital	Dallas, Texas
Parkland Hospital	Dallas, Texas
Salt Lake County General Hospital	Salt Lake City
University of Virginia Hospital	Charlottesville, Va.
Chesapeake and Ohio Railway Employees Hospital	Clifton Forge, Va.
Medical College of Virginia Hospital Division	Richmond, Va.

PEDIATRICS

Number of Approved Programs, 37

Children's Hospital	Los Angeles
Stanford University Hospitals	San Francisco
University of California Hospital	San Francisco
Grace-New Haven Community Hospital	New Haven, Conn.
Grady Memorial Hospital	Atlanta
Michael Reese Hospital	Chicago
University of Chicago Clinics	Chicago
Louisville General Hospital	Louisville
Baltimore City Hospitals	Baltimore
Johns Hopkins Hospital	Baltimore
Sinai Hospital	Baltimore
Beth Israel Hospital	Boston
Boston City Hospital	Boston
Children's Medical Center	Boston
Massachusetts General Hospital	Boston
Northwestern Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
St. Louis Children's Hospital	St. Louis
St. Louis City Hospital	St. Louis
Medical Center—Jersey City Hospital	Jersey City, N. J.
Cumberland Hospital	Brooklyn
Kings County Hospital Center	Brooklyn
Long Island College Hospital	Brooklyn
Charles S. Wilson Memorial Hospital	Johnson City, N. Y.
Mary Immaculate Hospital	Jamaica, N. Y.
Bellevue Hospital Center	
Third Medical Division—New York University College of Medicine	New York City
New York Hospital	New York City
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
North Carolina Memorial Hospital	Chapel Hill, N. C.
Duke Hospital	Durham, N. C.
North Carolina Baptist Hospital	Winston-Salem, N. C.
University Hospitals	Cleveland
St. Thomas Hospital	Nashville, Tenn.
Vanderbilt University Hospital	Nashville, Tenn.
Baylor University Hospital	Dallas, Tex.
Salt Lake County General Hospital	Salt Lake City
Milwaukee Children's Hospital	Milwaukee, Wis.

SURGERY

Number of Approved Programs, 59

Veterans Admin. Hospital	Little Rock, Ark.
Veterans Admin. Hospital	Nashville, Tenn.
Veterans Admin. Hospital	McKinney, Tex.
Stanford University Hospitals	San Francisco
University of California Hospital	San Francisco
Grace-New Haven Community Hospital	New Haven, Conn.
Grady Memorial Hospital	Atlanta
Emory University Hospital	Emory University, Ga.
Michael Reese Hospital	Chicago
Provident Hospital	Chicago
Ravenswood Hospital	Chicago
Indiana University Medical Center	Indianapolis
Johns Hopkins Hospital	Baltimore
Sinai Hospital	Baltimore
Beth Israel Hospital	Boston
Boston City Hospital	Boston
Massachusetts Memorial Hospitals	Boston
New England Center Hospital	Boston
Peter Bent Brigham Hospital	Boston
Northwestern Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
Barnes Hospital	St. Louis
St. Louis City Hospital	St. Louis
St. Mary's Group of Hospitals	St. Louis
Medical Center—Jersey City Hospital	Jersey City, N. J.
Albany Hospital	Albany, N. Y.
Cumberland Hospital	Brooklyn
Kings County Hospital Center	Brooklyn
Long Island College Hospital	Brooklyn
St. John's Episcopal Hospital	Brooklyn
Buffalo General Hospital	Buffalo, N. Y.
Mary Immaculate Hospital	Jamaica, N. Y.
Queens General Hospital	Jamaica, N. Y.
Charles S. Wilson Memorial Hospital	Johnson City, N. Y.
Mount Vernon Hospital	Mount Vernon, N. Y.
Bellevue Hospital Center	
First Surgical Division—Columbia University	New York City
Second Surgical Division—Cornell University	New York City
Third Surgical Division—New York University College of Medicine	New York City
Fourth Surgical Division—New York University Postgraduate Medical School	New York City
Knickerbocker Hospital	New York City
Lebanon Hospital	New York City
Mount Sinai Hospital	New York City
New York Hospital	New York City
Presbyterian Hospital	New York City
St. Clare's Hospital	New York City
St. Vincent's Hospital	New York City
Genesee Hospital	Rochester, N. Y.
North Carolina Memorial Hospital	Chapel Hill, N. C.
Duke Hospital	Durham, N. C.
Watts Hospital	Durham, N. C.
North Carolina Baptist Hospital	Winston-Salem, N. C.
University Hospitals	Cleveland
Baptist Memorial Hospital	Memphis
St. Thomas Hospital	Nashville, Tenn.
Vanderbilt University Hospital	Nashville, Tenn.
Baylor University Hospital	Dallas, Tex.
St. Paul's Hospital	Dallas, Tex.
University of Virginia Hospital	Charlottesville, Va.
Medical College of Virginia Hospital Division	Richmond, Va.

APPROVED RESIDENCIES AND FELLOWSHIPS

Council on Medical Education and Hospitals of the American Medical Association
535 North Dearborn Street, Chicago 10

Revised to September 1, 1953

Hospitals, 1,159; Assistant Residencies, Residencies and Fellowships, 22,763

The following services are approved by the Council on Medical Education and Hospitals as meeting the requirements of the Essentials of Approved Residencies and Fellowships. In those specialties in which certifying boards have been established approval is extended in concurrence with the Board concerned. The number of years of training for which approval has been granted is indicated in the column, "Length of Approved Program (years)." Residencies in which this designation does not appear have been approved without specifying the number of years for which they are accredited. The beginning stipends for Federal hospitals have not been listed; they are established in accordance with government pay tables.

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1. ALLERGY

The following services have been approved for one year of training by the Council and the Subspecialty Board for Allergy of the American Board of Internal Medicine.

Hospitals, 18; Assistant Residencies and Residencies, 25

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL							
UNITED STATES ARMY							
Army Medical Center [1-66-67]	Washington, D. C.	A. J. Berger	344	26,826	..	1	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	B. Klaumann	92	19,865	..	1	...
Veterans Admin. Hospital [1]	Aspinwall, Pa.	L. H. Criep	200	19,250	2	2	...
NONFEDERAL							
Northwestern University Medical Center [1-3]	Chicago	S. Feinberg	460	6,240	2	2	250
University of Illinois Research and Educational Hospitals [1-3]	Chicago	H. F. Dowling	...	6,760	..	..	60
Massachusetts General Hospital [1-3]	Boston	W. S. Burrage	...	7,373	1	1	100
University Hospital [1-3]	Ann Arbor, Mich.	J. M. Sheldon	...	5,522	2	2	208
Jewish Hospital [1-3]	Brooklyn	M. Walzer	33	8,702	1	2	75
New York Hospital [1-3]	New York City	H. Baldwin	...	8,944	..	..	25
New York University-Bellevue Medical Center University Hospital [1-3]	New York City	W. C. Spain	...	7,312	1	1	85
Roosevelt Hospital [1-3]	New York City	R. A. Cooke	243	38,307	4	4	200
Duke Hospital [1-3]	Durham, N. C.	O. C. Hansen-Pruss	127	1,076	..	2	200
Temple University Hospital [1-3]	Philadelphia	L. Tuft	...	4,346	1	1	50
Montefiore Hospital [1-3]	Pittsburgh	L. H. Criep	158	14,962	2	2	58.33
University of Virginia Hospital [1-3]	Charlottesville, Va.	O. Swineford Jr.	...	5,798	3	3	150
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	W. B. Blanton	...	5,892	..	1	100

2. ANESTHESIOLOGY

The following services have been approved by the Council and the American Board of Anesthesiology.

Hospitals, 179; Assistant Residencies and Residencies, 903

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
UNITED STATES ARMY								
Letterman Army Hospital [1-66]	San Francisco, Calif.	R. R. Jones	7,044	3,085	1	2	2	...
Fitzsimons Army Hospital [66]	Denver, Colo.	J. F. Kellogg Jr.	6,296	2,556	2	4	2	...
Army Medical Center [1-66-67]	Washington, D. C.	C. H. Mitchell	12,966	6,538	2	4	2	...
Brooke Army Medical Center [1-66-280]	San Antonio, Texas	J. G. Inman	14,698	6,814	2	4	2	...
UNITED STATES AIR FORCE								
U. S. Air Force Hospital [1]	San Antonio, Texas	A. B. Tarrow	3,210	912	2	2	2	...
UNITED STATES NAVY								
U. S. Naval Hospital [1]	Oakland, Calif.	S. Whitehouse	12,720	1,401	..	2	2	...
U. S. Naval Hospital [1]	Bethesda, Md.	D. J. Giorgio	3,766	2,703	..	2	2	...
U. S. Naval Hospital [1]	Chelsea, Mass.	S. A. Wilbur	5,771	1,287	..	2	2	...
U. S. Naval Hospital [1]	Philadelphia	J. G. Kurfees	6,289	789	..	2	2	...

Numerical and other references will be found on pages 373 and 374.

2. ANESTHESIOLOGY—*Continued*

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital [1-3]	Staten Island, N. Y.	C. L. Hebert	7,519	1,677	1	3	2	...
VETERANS ADMINISTRATION								
[1-3]	Los Angeles	N. H. Rupp	6,069	937	5	9	2	...
[1-72-76]	Atlanta, Ga.	K. L. Byers	2,177	346	1	2	2	...
[1-96]	Hines, Ill.	M. Sadove	5,917	2,552	6	9	2	...
[1-109]	Des Moines, Iowa	J. L. Bailey (See University Hospitals, Iowa City, Iowa)	3,377	698	4	6	2	...
Veterans Admin. Hospital [1]	Iowa City, Iowa	S. C. Cullen (See University Hospitals, Iowa City, Iowa)	1,759	260	4	4	..	...
Veterans Admin. Hospital	Boston (West Roxbury), Mass.	J. W. D. Garrett	.....	.....	..	..	2	...
Veterans Admin. Hospital [1-3]	Jefferson Barracks, Mo.	H. W. Crouch	3,350	793	2	4	..	...
Veterans Admin. Hospital [1-3-170]	Brooklyn	H. I. Lipson	4,071	1,177	3	6	2	...
Veterans Admin. Hospital [1-3]	Buffalo	S. I. Guest	4,690	1,415	..	4	2	...
Veterans Admin. Hospital [1-3]	New York (Bronx), N. Y.	E. A. Rovenstine	5,931	2,001	4	8	2	...
Veterans Admin. Hospital [1-3]	Portland, Ore.	F. P. Haugen	2,338	897	1	1	2	...
Veterans Admin. Hospital [1-3]	Houston, Texas	G. E. Bittenbender	3,541	1,085	1	2	..	...
Veterans Admin. Hospital [1]	McKinney, Texas	D. Alexander	1,468	440	1	2	2	...
Veterans Admin. Hospital [1]	White River Jct., Vt.	R. E. Lapointe	1,574	473	1	1	2	...
Veterans Admin. Hospital [1]	Richmond, Va.	C. G. Lynch	4,684	780	2	3	2	...
Veterans Admin. Hospital [1]	Milwaukee, Wis.	R. A. Tella	2,439	119	5	5	2	...
NONFEDERAL								
Jefferson-Hillman Hospital [1-3]	Birmingham, Ala.	A. McNeal	9,571	6,586	1	3	2	...
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	A. Habeeb	3,375	2,060	1	2	2	225
St. Vincent Infirmary [1-3]	Little Rock, Ark.	J. P. Hickey	.....	.....	..	..	2	...
University Hospital [1]	Little Rock, Ark.	C. Shafer	2,116	1,259	1	2	2	120
Los Angeles County Hospital [1]	Los Angeles	C. F. McCuskey	13,975	4,123	..	14	2	190
White Memorial Hospital [1-3-29]	Los Angeles	F. E. Leffingwell	5,003	815	2	6	2	146 25
Samuel Merritt Hospital [1]	Oakland, Calif.	B. M. Anderson	5,897	1,340	..	2	2	105
Franklin Hospital [1-3]	San Francisco	J. L. Cardwell	4,602	4,142	2	4	2	125
French Hospital [1-3]	San Francisco	M. L. Skaggs	3,120	1,663	1	1	2	125
St. Joseph's Hospital [1-3]	San Francisco	C. C. Wycoff	4,223	2,128	1	2	2	150
Stanford University Hospitals [1-3]	San Francisco	P. J. Bailey	7,319	3,901	1	4	2	50
University of California Hospital [1-3]	San Francisco	F. J. Murphy	5,286	4,248	..	6	2	87
Santa Clara County Hospital [1]	San Jose, Calif.	J. Atkinson	1,708	1,090	1	2	2	260
University of Colorado Medical Center			.....	.....	2	6	..	150
Colorado General Hospital [1-3-22]	Denver, Colo.		3,392	1,491	..	..	2	...
Denver General Hospital [1-3-22]	Denver, Colo.		2,022	1,461	..	..	2	...
Bridgeport Hospital [1-3]	Bridgeport, Conn.	D. Massey	8,612	2,306	1	2	2	125
Hartford Hospital [1-3-55-56-57]	Hartford, Conn.	R. M. Tovell	35,255	16,220	10	20	2	100
St. Francis Hospital [1-3]	Hartford, Conn.	S. J. Martin	13,445	6,993	5	10	2	100
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	L. J. Hampton	10,791	5,560	4	8	2	50
Hospital of St. Raphael [3]	New Haven, Conn.	M. Garofalo	9,566	3,468	2	4	2	100
Doctors Hospital [1-3]	Washington, D. C.	C. W. Hyde D. Stubbs	9,228	6,915	2	2	2	200
Garfield Memorial Hospital [1-3]	Washington, D. C.	W. E. Bageant	3,062	221	2	2	2	100
Georgetown University Hospital [1-3]	Washington, D. C.	T. F. McDermott	5,973	2,512	4	10	2	...
George Washington University Hospital [1-3]	Washington, D. C.	C. S. Coakley	9,932	3,757	6	10	2	130
Riverside Hospital [1-3]	Jacksonville, Fla.	J. T. Stage	918	818	1	1	2	150
Mount S	mi Beach, Fla.	S. H. Axelrod	3,210	978	1	2	..	...
Universi	Augusta, Ga.	P. P. Volpitto	7,573	4,932	3	6	2	160
Emory	Jniversity, Ga.	W. H. Galvin	9,173	5,240	1	2	..	170
American Hospital [1-3]	Chicago	A. Rappaport	2,716	1,718	5	6	2	50
Cook County Hospital [1-3]	Chicago	M. M. Tennant	10,453	7,496	3	3	2	50
Grant Hospital [1-3]	Chicago	L. A. Gittelson	4,212	3,112	2	2	2	...
Michael Reese Hospital [1-3]	Chicago	B. Stodsky	9,376	5,815	1	2	2	100
Mount Sinai Hospital [1-3]	Chicago	R. Weyl	5,606	4,589	2	4	2	100
Northwestern University Medical Center								
Wesley Memorial Hospital [1-3-90]	Chicago	M. Karp	10,089	8,840	4	6	2	50
Presbyterian Hospital [1-3]	Chicago	M. Lyons	8,477	6,865	2	4	2	125
St. Luke's Hospital [1-3-95]	Chicago	P. W. Searles	7,785	5,335	3	9	2	50
University of Chicago Clinics [1-3]	Chicago	E. T. Mörch	8,216	6,052	4	7	2	175
University of Illinois Research and Educational Hospitals [1-3]	Chicago	M. Sadove	2,972	2,428	3	9	2	60
Evanston Hospital [1-3]	Evanston, Ill.	N. Hess	6,178	1,933	2	4	2	200
St. Joseph's Hospital	Joliet, Ill.	L. D. Ruttle	9,000	.....	..	2	2	...
Indiana University Medical Center [1-103]	Indianapolis	V. K. Stoelting	10,968	7,882	7	14	2	150
Memorial Hospital [1-105-106]	South Bend, Ind.	G. M. Rosenheimer	6,650	4,285	2	2	2	250
University Hospitals [1-3]	Iowa City, Iowa	S. C. Cullen	8,688	6,668	5	10	2	75
University of Kansas Medical Center [1-3]	Kansas City, Kan.	P. Lorhan	7,248	3,899	3	8	2	125
St. Joseph Hospital [1-3]	Lexington, Ky.	W. G. Sergent	7,910	4,492	1	2	2	...
Louisville General Hospital [1-3]	Louisville, Ky.	R. P. Bergner	6,757	4,963	3	6	2	75
Charity Hospital of Louisiana [1-3]	New Orleans	J. Adriani	10,000	9,000	5	10	2	40
Ochsner Foundation Hospital [1-3]	New Orleans	G. B. Grant	3,468	1,540	3	5	2	200
Touro Infirmary [1-116]	New Orleans	M. C. Beck	10,815	4,479	1	2	2	200
Eastern Maine General Hospital [1-3]	Bangor, Maine	C. S. Dwyer	5,976	5,223	1	2	2	100
Central Maine General Hospital [1-3]	Lewiston, Maine	G. Clapperton	3,974	1,115	1	2	2	150
Maine General Hospital [1]	Portland, Maine	J. R. Lincoln	5,108	3,250	2	4	2	100
Boston City Hospital [1-3]	Boston	P. S. Marcus	21,946	7,359	..	12	2	162
Lahey Clinic [1-3]	Boston	U. H. Eversole	19,655	5,866	5	10	2	150
Massachusetts General Hospital [1-3]	Boston	H. K. Beecher	19,252	10,374	8	10	2	100
Massachusetts Memorial Hospitals [1-3]	Boston	J. Arrowood	3,733	2,478	4	5	2	75
New England Center Hospital [1-3]	Boston	B. E. Etsten	2,915	1,841	..	6	2	100
New England Deaconess Hospital [1-3-131]	Boston	L. V. Hand F. J. Audin	5,218	2,538	4	4	2	200
New England Hospital [1-3]	Boston	E. E. Bartlett	3,221	2,474	1	2	2	...
Peter Bent Brigham Hospital [1-3]	Boston	W. S. Derrick	3,344	2,346	1	1	2	41.75
St. Elizabeth's Hospital [1-3]	Boston	L. Zentgraf	5,769	2,165	..	2	2	125
Cambridge City Hospital		D. R. Branch	3,552	1,053	1	2	2	125
Mount Auburn Hospital [1-3]		J. H. Buskirk	1,952	2,702	..	1	2	115
Holyoke Hospital [1-3-53]	Holyoke, Mass.	M. G. Black	2,881	708	..	2	2	150
Newton-Wellesley Hospital [1-3]	Newton Lower Falls, Mass.	R. S. Hunt	5,063	3,096	1	2	2	170
Springfield Hospital [1-3]	Springfield, Mass.	H. L. Strachan	5,180	1,731	1	2	..	75
Memorial Hospital [1-3]	Worcester, Mass.	R. F. Courtin	3,342	2,959	1	1	2	200
St. Vincent Hospital [1-3]	Worcester, Mass.	W. J. Martin, Jr.	5,653	2,914	2	4	2	175
City of Detroit Receiving Hospital [1-3]	Detroit	F. E. Greifenstein	6,499	1,669	4	10	2	254
Henry Ford Hospital [1-3]	Detroit	P. R. Dumke	13,731	5,251	2	4	..	225
Providence Hospital [1-3]	Detroit	N. M. Bittrich	6,322	1,906	2	4	2	250

Numerical and other references will be found on pages 373 and 374.

2. ANESTHESIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Butterworth Hospital[1-3]	Grand Rapids, Mich.	M. L. Byrd	9,162	8,188	1	2	2	225
University of Minnesota Hospitals[1-3]	Minneapolis, Minn.	R. T. Knight	6,329	3,794	14	86	2	150
Mayo Foundation[1-3]	Rochester, Minn.	R. C. Adams	33,401	23,290	5	15	2	150
Research Hospital[1-3]	Kansas City, Mo.	....	6,050	2,455	1	2	2	150
Barnes Hospital[1-3]	St. Louis	D. Eastwood	16,341	.....	..	8	2	50
St. John's Hospital[1-3]	St. Louis	S. Brown	5,653	2,185	1	2	2	150
St. Mary's Group of Hospitals[1-3]	St. Louis	J. McNearney	10,290	3,827	1	2	2	65
University of Nebraska Hospital[1-3]	*Omaha, Neb.*	H. H. Davis	1,896	847	1	1	2	175
Mary Hitchcock Memorial Hospital[1-3]	Hanover, N. H.	R. H. Barrett	5,012	1,989	2	4	2	170
West Jersey Hospital[1-3]	Camden, N. J.	E. K. Hultzman	4,198	3,829	2	3	2	200
Medical Center-Jersey City Hospital[1-3]	Jersey City, N. J.	W. J. Gleeson	6,884	2,542	2	3	2	66.75
Orange Memorial Hospital[1-3]	Orange, N. J.	M. G. Kilborn	5,037	1,935	1	1	..	120
St. Joseph Hospital[1-3]	Paterson, N. J.	H. G. Walker	5,687	4,281	2	2	2	150
Albany Hospital[1-3]	Albany, N. Y.	J. G. Converse	7,231	4,740	4	8	2	135
Beth-El Hospital[1-3]	*Brooklyn*	A. C. *Goldfeder*	6,101	1,741	2	3	2	100
Jewish Hospital[1-3-165]	Brooklyn	I. Pallin	12,054	7,359	5	6	2	100
Maimonides Hospital[1-3]	Brooklyn	L. Holzmann	8,669	5,219	2	3	2	75
Methodist Hospital[1-3]	Brooklyn	R. Waelsch	7,050	2,837	1	1	..	75
St. Catherine's Hospital[1-3]	Brooklyn	F. P. Ansbro	3,039	1,631	2	4	2	125
Buffalo General Hospital[1-3]	Buffalo	R. N. Terry	12,198	920	..	2	2	125
Edward J. Meyer Memorial Hospital[1]	Buffalo	E. D. Babbage	3,611	2,763	2	5	2	179
Millard Fillmore Hospital[1-3-100]	Buffalo	E. D. Babbage	11,222	1,573	1	2	2	255
Flushing Hospital and Dispensary[1-3]	Flushing, N. Y.	E. Apogi	7,580	6,886	1	2	2	125
Mary Immaculate Hospital[1-3]	Jamaica, N. Y.	G. Carr	5,676	4,312	1	2	..	110
Queens General Hospital[1-3]	Jamaica, N. Y.	M. Miller	3,820	1,743	1	2	2	98.33
Bellevue Hospital Center Division IV—New York University Post-Graduate Medical School[1-3-201-202]	New York City	E. A. Rovenstine	12,898	8,575	8	17	2	98
Beth Israel Hospital[1-3]	New York City	S. G. Hershey	6,661	4,923	2	4	2	75
Flower and Fifth Avenue Hospitals[1-3]	New York City	....	8,371	5,113	1	2	2	...
Hospital for Joint Diseases[1-3-100]	New York City	A. M. Betcher	3,822	2,365	2	3	2	70
Hospital for Special Surgery[1-3]	New York City	C. Burstein	2,388	1,933	1	1	..	160
Lenox Hill Hospital[1-3]	New York City	M. Frick	8,207	6,287	1	2	2	180
Memorial Center for Cancer and Allied Diseases[1-3]	New York City	O. Schweizer	6,723	3,223	3	7	..	200
Metropolitan Hospital[1-3]	New York City	D. E. Brace	5,723	2,860	3	5	2	150
Montefiore Hospital[1-3]	*New York City*	E. *Kepes*	1,455	1,222	1	2	2	60
Mount Sinai Hospital[1-3]	New York City	M. Adelman	9,450	5,198	4	8	2	...
New York City Hospital[1-3]	New York City	D. Bizzarri	3,453	1,445	2	4	..	328
New York Hospital[1-3]	New York City	J. F. Artusio	9,169	7,966	5	10	2	25
New York Polyclinic Medical School and Hospital[1-3]	New York City	J. Milowsky	7,068	4,963	3	6	2	...
New York University-Bellevue Medical Center University Hospital[1-3]	New York City	(See also Bellevue Hospital Center, Division IV) E. A. Rovenstine	7,411	1,763	3	6	2	115
Presbyterian Hospital[1-3]	New York City	E. M. Papper	17,767	10,379	11	26	2	208.33
St. Clare's Hospital[1]	New York City	R. A. Rose	4,734	1,602	1	2	2	50
St. Luke's Hospital[1-3]	New York City	G. E. Burford	5,589	.....	2	4	2	60
St. Vincent's Hospital[1-3]	New York City	V. J. Collins	5,224	4,223	3	6	2	100
Sydenham Hospital[1-3]	New York City	M. Fischman	2,326	1,791	1	2	..	98
Genesee Hospital[1-3]	Rochester, N. Y.	K. S. Smith	5,355	3,952	1	2	..	75
Highland Hospital[1-3]	Rochester, N. Y.	H. Root	4,831	3,615	1	1	..	100
Rochester General Hospital[1-3]	Rochester, N. Y.	V. J. Coviello	6,153	4,255	2	4	2	100
St. Mary's Hospital[1-3]	Rochester, N. Y.	M. Weingarten	9,160	3,972	2	2	2	200
Ellis Hospital[1]	Schenectady, N. Y.	H. A. Snell	7,561	5,072	1	1	2	...
State University of New York Medical Center[1-3-220]	Syracuse, N. Y.	J. E. Delmonico	10,352	1,673	..	3	2	191.66
Grasslands Hospital[1-3]	Valhalla, N. Y.	H. F. Bishop	1,416	553	1	2	2	125
Duke Hospital[1-3]	Durham, N. C.	C. R. Stephen	12,501	5,260	4	8	2	100
Mercy Hospital[1-3]	Canton, Ohio	L. L. Frick	7,284	3,963	1	2	2	200
Christ Hospital[1]	Cincinnati	L. E. Larrick	7,734	2,711	1	2	2	200
Cleveland Clinic Hospital[1-3]	Cleveland	D. E. Hale	7,378	1,317	2	4	2	175
Mount Sinai Hospital[1-3]	Cleveland	S. Katz	8,701	5,909	2	4	2	...
St. Luke's Hospital[1-3]	Cleveland	B. B. Sankey	13,633	6,171	2	4	2	180
University Hospitals[1-3]	Cleveland	R. A. Hingson	13,650	.....	2	4	2	125
University Hospitals *University Hospital*[1-3-242]	*Columbus, Ohio*	*J. J. Jacoby*	7,739	6,186	12	18	2	150
Huron Road Hospital[1-3]	East Cleveland	R. J. Whitacre	9,780	6,021	5	10	2	150
Marymount Hospital[1-3]	Garfield Heights, Ohio	N. G. DePiero	4,482	3,368	2	4	..	200
St. Elizabeth Hospital	Youngstown, Ohio	A. J. Bayu	9,017	7,503	..	1	1	200
Youngstown Hospital	Youngstown, Ohio	A. J. Fisher	14,228	10,211	2	4	2	125
University Hospitals[1-3]	Oklahoma City	H. A. Bennett	5,271	4,284	2	5	2	50
University of Oregon Medical School *Hospitals and Clinics*[1-253]	*Portland, Ore.*	*F. Haugen*	9,064	2,548	3	6	2	85
Abington Memorial Hospital[1-3]	Abington, Pa.	R. S. Masiello	6,597	5,401	1	2	2	200
Albert Einstein Medical Center Northern Division[1-3]	Philadelphia	M. Bernsteine	7,372	6,850	4	4	2	200
Southern Division[1-3]	Philadelphia	B. Goldstein	4,856	4,025	3	3	2	200
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	H. H. Stone	4,784	4,074	3	3	2	100
Hahnemann Medical College and Hospital[1-3]	Philadelphia	H. S. Ruth	6,628	2,693	6	13	2	50
Hospital of the University of Pennsylvania[1-3]	Philadelphia	R. Dripps	15,139	6,671	..	16	2	125
Presbyterian Hospital[1-3]	Philadelphia	S. Schotz	5,150	3,674	4	4	2	...
Temple University Hospital[1-3]	Philadelphia	L. W. Krumperman	15,627	5,275	2	6	2	50
Allegheny General Hospital[1-3]	Pittsburgh	R. L. Patterson	10,596	7,417	4	4	2	150
Mercy Hospital[1-3]	[illegible]	F. F. Foldes	11,535	3,028	6	12	2	150
Montefiore Hospital[1-3]		L. G. David	5,800	3,000	2	2	..	58.33
St. Francis Hospital[1-]		G. J. Thomas	10,700	5,291	2	4	2	150
Robert Packer Hospital[1-3]	Sayre, Pa.	W. F. Brehm	7,335	4,556	1	2	2	100
Rhode Island Hospital[1-3]	Providence, R. I.	M. Saklad	8,276	2,829	1	2	2	60
Roper Hospital[1-3]	Charleston, S. C.	J. M. Brown	6,393	4,147	1	2	2	83
Baroness Erlanger Hospital[1-3]	Chattanooga, Tenn.	F. S. Brannen	.....	.....	3	6	2	...
City of Memphis Hospitals[1-3]	Memphis, Tenn.	M. F. Poe	9,088	.....	1	2	2	35
Vanderbilt University Hospital[1-3-267]	Nashville, Tenn.	B. H. Robbins	6,576	3,176	2	4	2	50
Baylor University Hospital[1-3]	Dallas, Texas	E. Weir	20,750	8,873	1	2	2	75
Parkland Hospital[1-3]	Dallas, Texas	M. T. Jenkins	2,900	1,603	2	4	2	50
Harris Hospital[1-3]	Fort Worth, Texas	A. A. Gentling	9,776	5,933	2	2	..	125
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	C. Allen	5,418	3,775	5	12	2	...
Hermann Hospital[1-3]	Houston, Texas	L. F. Schuhmacher, Jr.	15,553	4,194	2	4	2	100
University of Utah Affiliated Hospitals[1-3-281]	Salt Lake City	S. Smith	.....	.....	..	..	2	...
Bishop DeGoesbriand Hospital[1-3-287]	Burlington, Vt.	J. Abajian	2,801	1,438	1	2	2	50
Mary Fletcher Hospital[1-3]	Burlington, Vt.	J. Abajian	3,274	1,468	2	2	2	75
University of Virginia Hospital[1-3]	Charlottesville, Va.	H. F. Chase	9,765	6,091	2	4	2	50
Medical College of Virginia—Hospital Division[1-3]	Richmond, Va.	W. E. Pembleton	12,064	2,534	1	4	2	...

Numerical and other references will be found on pages 373 and 374.

2. ANESTHESIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
King County Hospital, Unit No. 1 (Harborview)	Seattle, Wash.	J. E. Mathwig	2,651	1,928	2	2	2	110
Virginia Mason Hospital [1-3]	Seattle, Wash.	D. C. Moore	4,505	1,816	1	2	2	125
Tacoma General Hospital [1-3]	Tacoma, Wash.	J. J. Bonica	3,004	1,468	..	4	2	200
Ohio Valley General Hospita	Va.	D. E. Greeneltch	6,748	3,422	1	2	2	325
University Hospitals [1-3]	Wis.	O. S. Orth	5,422	4,879	4	9	2	50
San Juan City Hospital [1-3]	San Juan, P. R.	F. J. Gonzalez	4,143	1,835	1	2	2	150

3. CARDIOVASCULAR DISEASE

The following services have been approved for one year of training by the Council and the Subspecialty Board for Cardiovascular Disease of the American Board of Internal Medicine.

Hospitals, 30; Assistant Residencies and Residencies, 71

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
UNITED STATES ARMY									
Letterman Army Hospital [66]	San Francisco, Calif.	B. E. Pollock	330	1,607	35	27	1	1	...
Fitzsimons Army Hospital [1-66]	Denver, Colo.	E. M. Goyette	414	2,817	13	13	1	1	...
Army Medical Center [1-66-67]	Washington, D. C.	T. W. Mattingly	617	5,810	55	43	..	2	...
Brooke Army Medical Center [66-280]	San Antonio, Texas	R. P. Johnson	505	6,717	40	37	2	2	...
UNITED STATES NAVY									
U. S. Naval Hospital [1]	Bethesda, Md.	E. F. Evans	...	4,583	..	..	..	..	...
VETERANS ADMINISTRATION									
Veterans Admin. Hospital	Long Beach, Calif.	D. W. Leik	690	408	4	3	..	2	...
Veterans Admin. Hospital [1]	Hines, Ill.	L. A. Baker	1,310	89	171	86	..	4	...
Veterans Admin. Hospital	Richmond, Va.	J. P. Williams	731	3,496	72	40	..	1	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
George Washington University Hospital [1-3]	Washington, D. C.	J. M. Evans	...	3,364	...	...	1	3	150
Michael Reese Hospital [1-3]	Chicago	L. N. Katz	743	3,746	89	...	10	10	...
Indianapolis General Hospital [1]	Indianapolis, Ind.	K. G. Kohlstaedt	495	3,992	...	...	1	1	300
Indiana University Medical Center [1]	Indianapolis, Ind.	J. O. Ritchey	...	1,449	...	...	..	1	200
Henry Ford Hospital [1-3]	Detroit	F. J. Smith	1,767	22,662	162	108	..	5	225
Irvington House [1-3-4]	Irvington-on-Hudson, New York	A. C. DeGraff	250	2,000	...	...	..	6	200
Lenox Hill Hospital [1-3]	New York City	C. Kossman	...	3,411	...	...	1	1	180
St. Luke's Hospital [1-3]	New York City	J. H. Keating	...	1,674	...	...	2	2	110
St. Francis Sanatorium for Cardiac Children [1-3]	Roslyn, L. I., N. Y.	L. M. Taran	299	.....	2	1	4	4	250
Duke Hospital [1-3]	Durham, N. C.	E. S. Orgain	268	467	14	10	..	2	200
Cincinnati General Hospital [1-3]	Cincinnati	....	...	10,660	..	..	..	..	...
Cleveland Clinic Hospital [1-3]	Cleveland	I. H. Page	823	2,430	19	7	2	2	175
University Hospitals University Hospital [1-3]	Columbus, Ohio	R. W. Kissane	...	.....	...	...	..	1	150
White Cross Hospital [1-3]	Columbus, Ohio	R. W. Kissane	524	...	60	8	1	1	375
Graduate Hosp. of the University of Pennsylvania [1-3]	Philadelphia	S. Bellet	250	1,919	7	2	1	2	...
Pennsylvania Hospital [1-3]	Philadelphia	J. B. VanderVeer	...	3,590	...	...	4	4	20
Philadelphia General Hospital [1-3]	Philadelphia	S. Bellet	...	4,786	...	...	5	5	112.34
Temple University Hospital [1-3]	Philadelphia	R. A. Kern	...	1,487	...	...	1	1	50
Presbyterian Hospital [1]	Pittsburgh	A. Koenig	705	.....	128	37	..	1	50
St. Francis Hospital [1-3]	Pittsburgh	A. P. D'Zmura	4,447	1,015	64	18	..	1	200
Rhode Island Hospital [1-3]	Providence, R. I.	F. B. Cutts	...	978	..	..	1	1	110
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	G. R. Herrmann	...	2,276	...	..	4	4	...

4. CONTAGIOUS DISEASES

The following services have been approved for one year of training by the Council on Medical Education and Hospitals.

Hospitals, 12; Assistant Residencies and Residencies, 52

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Children's Hospital [1-3]	San Francisco, Calif.	E. B. Shaw	504	...	20	14	1	1	125
Cook County Hospital [1-3]	Chicago	A. L. Hoyne	1,349	...	49	27	1	1	50
Municipal Contagious Disease Hospital [1-3]	Chicago	N. H. Blatt	...	...	..	..	6	6	208
Massachusetts Memorial Hospitals [1-3]	Boston	L. Weinstein	...	...	..	..	1	3	100
Belmont Hospital [1-3]	Worcester, Mass.	H. B. Goodspeed	511	...	2	1	1	1	500
Herman Kiefer Hospital [1-3]	Detroit	D. C. Young	1,739	1,910	89	47	3	3	436
Essex County Hospital for Contagious Diseases [1-3]	Belleville, N. J.	E. L. Smith	2,014	...	24	6	2	2	190
Municipal Hospital for Contagious Diseases [1-180-183]	Camden, N. J.	L. L. Cariel	313	1,511	8	7	..	2	10
Kingston Avenue Hospital [1-3-5]	Brooklyn	M. M. Maliner	2,998	...	42	13	16	16	150.83
Willard Parker Hospital [1-3]	New York City	J. L. Kohn	6,599	...	27	14	15	15	99
City Hospital	Cleveland	F. C. Robbins	1,091	...	59	..	..	..	90
Philadelphia General Hospital Northern Division [1-3]	Philadelphia	A. C. LaBoccetta	1,455	2,623	29	21	2	2	112

5. DERMATOLOGY AND SYPHILOLOGY

The following services have been approved by the Council and the American Board of Dermatology and Syphilology.

Hospitals, 83; Assistant Residencies and Residencies, 160

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY										
Letterman Army Hospital [66]	San Francisco, Calif.	R. S. Higdon	202	9,139	..	..	1	3	2	...
Army Medical Center [1-66-67]	Washington, D. C.	W. N. Piper	326	9,452	1	..	2	7	3	...
Brooke Army Medical Center [66-280]	San Antonio, Texas	M. P. Moursund	328	12,088	..	..	1	3	3	...

Numerical and other references will be found on pages 373 and 374.

5. DERMATOLOGY AND SYPHILOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES NAVY										
U. S. Naval Hospital	San Diego, Calif.	J. H. Lockwood	634	23,090	..	..	..	2	2	...
U. S. Naval Hospital [1]	St. Albans, N. Y.	W. R. Hubler	220	3,776	..	..	..	2	2	...
U. S. Naval Hospital [1]	Philadelphia, Pa.	C. D. Bell	324	6,792	1	..	..	3	2	...
UNITED STATES PUBLIC HEALTH SERVICE										
U. S. Public Health Service Hospital [1-3]	Staten Island, N. Y.	B. Chester	831	12,061	..	..	1	4	2	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE										
Freedmen's Hospital [1-3]	Washington, D. C.	C. W. Freeman	14	5,833	..	..	1	1	2	...
VETERANS ADMINISTRATION										
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	M. E. Obermayer	832	3,872	8	2	5	5	2	...
Veterans Admin. Hospital [1-3]	Los Angeles, Calif.	V. Newcomer	302	11,148	9	8	2	6	2	...
Veterans Admin. Hospital [1]	Hines, Ill.	E. A. Oliver	1,090	62	66	33	..	2	2	...
Veterans Admin. Hospital [1]	New Orleans, La.	B. Kennedy	73	433	..	..	1	1	1	...
Veterans Admin. Hospital [1-3-122]	Fort Howard, Md.	M. Sullivan	105	3	..	..	1	3	3	...
Veterans Admin. Hospital [1-3]	Minneapolis, Minn.	H. Michelson	298	142	1	...	..	2	3	...
Veterans Admin. Hospital [1-3]	New York (Bronx), N. Y.	B. Straus	398	4,632	..	..	..	3	3	...
Veterans Admin. Hospital [1]	Aspinwall, Pa.	S. Crawford	230	.....	1	..	1	1	1	...
Veterans Admin. Hospital [1]	Milwaukee, Wis.	J. Kanter	1,026	1,752	7	5	2	3	2	...
NONFEDERAL										
Jefferson-Hillman Hospital [1-3]	Birmingham, Ala.	R. O. Noojin	138	10,711	1	1	1	3	3	...
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	P. G. Reque	116	4,765	..	..	1	1	1	225
Los Angeles County Hospital [1]	Los Angeles, Calif.	B. A. Newman	642	17,613	15	7	..	3	3	190
White Memorial Hospital [1-3]	Los Angeles, Calif.	M. Couperus	21	4,707	1	..	1	2	2	146.25
Stanford University Hospitals [1-3]	San Francisco, Calif.	E. Farber	56	9,618	..	..	1	3	3	50
University of California Hospital [1-3]	San Francisco, Calif.	F. A. Torrey	49	6,393	..	..	..	3	3	87
University of Colorado Medical Center		O. G. Philpott	21	3,269	2	2	..	..	..	...
Colorado General Hospital [1-3-22]	Denver, Colo.	....	...	.....	..	..	1	3	1	150
Denver General Hospital [1-3-22]	Denver, Colo.	A. R. Woodburne	28	4,442	..	..	..	..	..	...
Georgetown University Hospital [1-3]	Washington, D. C.	F. Eichenlaub	104	1,913	1	..	1	2	2	...
Cook County Hospital [1-3]	Chicago	J. R. Webster	589	8,962	11	5	2	2	3	50
Michael Reese Hospital [1-3]	Chicago	A. Buchholz	85	4,428	..	..	1	..	1	75
Northwestern University Medical Center [1-3]	Chicago	H. Rattner	...	2,600	..	..	4	4	3	100
University of Chicago Clinics [1-3]	Chicago	S. Rothman	130	8,833	2	2	3	8	3	175
University of Illinois Research and Educational Hospitals [1-3]	Chicago	F. E. Senear	54	12,013	2	2	1	3	3	60
Indianapolis General Hospital [1]	Indianapolis, Ind.	J. Dalton	85	6,510	..	..	1	3	3	150
University Hospitals [1-3]	Iowa City, Iowa	R. Nomland	309	3,623	8	3	1	3	3	75
University of Kansas Medical Center [1-3]	Kansas City, Kan.	R. Sutton	29	2,406	..	..	1	1	1	125
Charity Hospital of Louisiana										
Independent Unit [1-3]	New Orleans	J. M. Henington	75	5,595	3	1	..	2	3	40
Louisiana State University Unit [1-3]	New Orleans	C. B. Kennedy	109	10,815	2	1	1	3	3	40
Tulane Unit [1-3]	New Orleans	....	119	9,576	1	..	1	3	3	40
Johns Hopkins Hospital [1-2-3]	Baltimore	....	...	11,273	..	..	..	7	1	...
University Hospital	Baltimore	H. M. Robinson	7	9,766	..	..	..	1	2	50
Boston City Hospital [1-3]	Boston	B. Appel	132	19,219	4	3	1	2	3	112
Massachusetts General Hospital [1-3]	Boston	C. Frazier	339	10,520	10	8	1	4	3	100
Massachusetts Memorial Hospitals [1-3]	Boston	H. Mescon	...	1,373	..	..	1	1	1	50
University Hospital [1-3]	Ann Arbor, Mich.	A. C. Curtis	631	5,091	6	5	4	12	3	134.16
City of Detroit Receiving Hospital [1-3]	Detroit	L. Shafer	482	4,928	..	..	1	3	3	...
Minneapolis General Hospital [1-3-150]	Minneapolis	C. Laymon	200	4,421	..	..	..	2	3	109
University of Minnesota Hospitals [1-3]	Minneapolis	H. E. Michelson	153	4,165	3	3	2	8	3	150
Mayo Foundation [1-3]	Rochester, Minn.	P. O'Leary	840	14,589	11	9	4	14	3	150
Ancker Hospital [1-3]	St. Paul, Minn.	J. Madden	251	3,625	1	..	..	1	3	150
Barnard Free Skin and Cancer Hospital [1-3]	St. Louis	C. W. Lane	23	10,501	5	2	1	2	3	125
Barnes Hospital [1-3]	St. Louis	C. W. Lane	124	4,098	1	..	1	3	3	50
St. Mary's Group of Hospitals [1-3-162-166]	St. Louis	G. V. Stryker	72	4,086	1	..	1	3	3	65
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	W. Lobitz Jr.	388	5,165	..	..	1	2	2	170
Kings County Hospital, County Division [1-3]	Brooklyn	C. Chiaramonte A. Grace	528	16,876	13	3	2	2	1	150
Buffalo General Hospital [1-3]	Buffalo, N. Y.	E. Osborne	7	2,552	..	..	..	1	2	125
Edward J. Meyer Memorial Hospital [1-194]	Buffalo, N. Y.	E. Osborne	122	8,711	1	1	2	4	3	179
Bellevue Hospital Center										
Division IV—New York University										
Post-Graduate Medical School [1-3]	New York City	F. C. Combes	641	18,915	14	1	7	7	3	98
Metropolitan Hospital [1-3]	New York City	E. F. Traub	132	16,162	2	1	1	1	1	150
Mount Sinai Hospital [1-3]	New York City	S. Peck	131	7,852	..	..	1	1	2	50
New York City Hospitals [1-3]	New York City	J. J. Eller	370	.....	..	..	1	2	1	150
New York Hospital [1-3]	New York City	G. Lewis B. Webster	...	12,391	..	..	..	..	3	25
New York Polyclinic Medical School and Hospital [1-3]	New York City	A. C. Cipollaro	69	6,054	..	..	1	2	3	...
New York University-Bellevue Medical Center		(See also Bellevue Hospital Center, Division IV)								
University Hospital (Skin and		M. B. Sulzberger	252	95,103	1	1	6	6	3	85
Presbyterian Hospital [1-3-207]		C. Nelson	...	38,581	..	..	1	2	3	208.33
St. Luke's Hospital [1-3]	New York City	L. Barker	...	9,209	..	..	1	1	2	60
Duke Hospital [1-3-220]	Durham, N. C.	J. L. Callaway	235	1,592	2	2	1	3	3	41.33
Cincinnati General Hospital [1]	Cincinnati	L. Goldman	278	5,714	7	4	3	3	3	...
City Hospital [1-3]	Cleveland	J. E. Rauschkolb	227	5,369	2	2	..	..	3	90
Cleveland Clinic Hospital [1-3]	Cleveland	E. W. Netherton	310	18,356	6	6	1	3	3	175
University Hospitals [1-3]	Cleveland	H. Johnson	139	6,226	1	..	1	3	3	42.50
University Hospitals [1-3]	Oklahoma City	C. P. Bondurant	68	2,421	1	..	2	2	1	...
University of Oregon Medical School										
Hospitals and Clinics [1]	Portland, Ore.	T. Fitzpatrick	52	3,355	1	1	1	3	2	85
Graduate Hospital of the	Philadelphia	M. H. Samitz	152	8,535	..	..	2	3	2	...
Hahnemann Medical Colle	Philadelphia	H. E. Twining	14	4,542	1	..	1	1	1	50
Hospital of the University of Pennsylvania [1-3]	Philadelphia	D. Pillsbury	198	11,533	1	1	..	20	3	...
Jefferson Medical College Hospital [1-3]	Philadelphia	H. B. Decker	26	5,728	..	..	..	..	1	...
Pennsylvania Hospital [1-3]	Philadelphia	M. H. Beerman	...	4,151	..	..	1	1	1	20
	Philadelphia	C. Thomas	306	3,387	5	..	2	2	1	112.34
	Pittsburgh	....	...	.....	..	..	..	..	3	...
	Philadelphia	....	456	36,074	1	..	4	4	2	50
Hospitals [1-3]	Galveston, Texas	C. S. Livingood	125	8,130	..	..	2	6	3	...
	Charlottesville, Va.	E. P. Cawley	234	8,696	..	..	2	6	3	50
Division [1-3]	Richmond, Va.	R. W. Fowlkes	...	12,038	..	..	..	1	1	100
University Hospitals	Madison, Wis.	S. A. M. Johnson	237	3,166	4	3	1	2	1	50

Numerical and other references will be found on pages 373 and 374.

6. GASTROENTEROLOGY

The following services have been approved for one year of training by the Council and the Subspecialty Board for Gastroenterology of the American Board of Internal Medicine.

Hospitals, 16; Assistant Residencies and Residencies, 32

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL									
UNITED STATES ARMY									
Letterman Army Hospital[66]	San Francisco	W. M. Webb	546	585	4	4	1	1	...
Army Medical Center[1-66]	Washington, D. C.	E. D. Palmer	472	1,219	8	8	..	1	...
Brooke Army Medical Center[66]	San Antonio, Texas	B. H. Sullivan, Jr.	715	784	17	17	1	1	...
VETERANS ADMINISTRATION									
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	A. E. Dagradi	759	918	55	48	..	2	...
Veterans Admin. Hospital[1]	Richmond, Va.	J. P. Williams	860	1,316	14	10	..	1	...
NONFEDERAL									
Michael Reese Hospital[1-3]	Chicago	H. Necheles	305	1,954	..	..	2	2	50
Massachusetts Memorial Hospitals[1-3]	Boston	F. Ingelfinger	...	1,162	..	..	..	4	...
Henry Ford Hospital[1-3]	Detroit	J. G. Mateer	917	25,422	20	17	..	4	225
Lenox Hill Hospital[1-3]	New York City	H. Rafsky	443	747	27	10	2	2	180
New York Polyclinic Medical School and Hospital	New York City	S. Weiss	276	1,864	17	2	1	1	100
Duke Hospital[1-3]	Durham, N. C.	J. M. Ruffin	259	...	3	3	..	2	200
University Hospitals									
University Hospital[1-3]	Columbus, Ohio	C. J. DeLor	46	1,270	..	..	..	1	150
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	H. L. Bockus	821	1,693	27	13	2	2	150
Hospital of the University of Pennsylvania[1-3]	Philadelphia	T. Machella	...	3,477	..	..	..	6	...
Jefferson Medical College Hospital[2-3]	Philadelphia	J. E. Deitrich	...	2,934	..	..	1	1	...
Temple University Hospital[1-3]	Philadelphia	H. Shay	...	788	..	..	1	1	50

7. GENERAL PRACTICE

The following services have been approved for two years of training by the Council on Medical Education and Hospitals.

Hospitals, 123; Assistant Residencies and Residencies, 278

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL									
UNITED STATES NAVY									
U. S. Naval Hospital[1]	Chelsea, Mass.	T. D. Cuttle	...	...	...	...	..	1	...
U. S. Naval Hospital[1]	Portsmouth, Va.	G. B. Tayloe	26,314	117,656	192	105	..	2	...
NONFEDERAL									
Maricopa County General Hospital[1]	Phoenix, Ariz.	M. Flohr	...	...	...	...	..	6	350
St. Mary's Hospital[1-3]	Tucson, Ariz.	A. B. Thompson	12,538	8,267	275	112	2	4	...
General Hospital of Riverside County[1-3]	Arlington, Calif.	L. Kanter	2,849	10,111	119	59	4	4	360
Kern General Hospital[1-3]	Bakersfield, Calif.	J. E. Brackley	...	...	...	...	16	16	350
Los Angeles County Hospital[1]	Los Angeles	P. Berman	1,397	...	26	3	..	6	190
Methodist Hospital of Southern California[1-3]	Los Angeles	E. Eisen	10,047	...	283	88	2	2	150
Contra Costa County Hospital	Martinez, Calif.	....	...	...	...	..	..	..	...
Sequoia Hospital[1-3]	Redwood City, Calif.	W. Gillogley	1,916	...	38	15	3	3	300
Sacramento County Hospital[1-3]	Sacramento, Calif.	L. W. Farrell	12,537	82,785	1,118	408	8	12	300
Monterey County Hospital[1]	Salinas, Calif.	W. A. Cassidy	2,803	20,836	200	76	6	6	446
St. Francis Memorial Hospital[1-3]	San Francisco	P. R. Westdahl	2,900	...	204	47	1	2	300
Community Hospital of San Mateo County[1-3]	San Mateo, Calif.	J. P. Sweeney	...	...	...	...	8	8	300
Sonoma County Hospital[1-3]	Santa Rosa, Calif.	H. D. Stailey	2,579	19,200	318	102	9	9	350
Glockner-Penrose Hospital[1-3]	Colorado Springs	C. S. Gydesen	5,922	2,101	144	74	1	2	200
St. Francis Hospital[1-3]	Colorado Springs	H. M. Min	4,880	4,582	138	167	2	2	210
University of Colorado Medical Center		....	...	...	...	..	8	24	150
Colorado General Hospital[1-3-22]	Denver, Colo.	C. J. Smyth	...	...	...	..	..	..	...
Denver General Hospital[1-3-22]	Denver, Colo.	C. J. Smyth	...	...	...	..	..	..	...
Charlotte Hungerford Hospital[1-3]	Torrington, Conn.	M. E. Giobbe	5,730	917	158	67	2	4	100
Wilmington General Hospital[1-3]	Wilmington, Del.	C. Levy	6,638	15,406	109	38	8	8	250
Eastern Dispensary and Casualty Hospital[1-3]	Washington, D. C.	J. R. Young	4,770	22,692	109	23	6	6	300
Halifax District Hospital[1-3]	Daytona Beach, Fla.	F. A. Sica	6,292	6,262	270	119	..	3	275
St. Luke's Hospital[1]	Jacksonville, Fla.	E. E. Leitner	...	...	...	..	2	4	200
St. Vincent's Hospital[1-3]	Jacksonville, Fla.	L. M. Wachtel	...	...	...	..	1	2	135
Grady Memorial Hospital[1-3]	Atlanta, Ga.	R. H. Oppenheimer	...	...	...	..	12	12	20
Columbus City Hospital[1]	Columbus, Ga.	J. N. Willis	10,082	14,951	302	91	4	4	250
Macon Hospital[1]	Macon, Ga.	F. M. Hauser	1,999	1,529	207	42	9	17	200
St. Joseph's Hospital[1-3]	Alton, Ill.	H. Halley	7,769	12,375	184	97	4	4	250
MacNeal Memorial Hospital[1-3]	Berwyn, Ill.	J. D. McCarthy	8,875	8,748	...	..	4	4	175
Grant Hospital[1-3]	Chicago	K. S. Gustin	...	817	...	..	1	1	...
Ravenswood Hospital[1-3]	Chicago	H. Carter	...	...	...	..	2	2	75
St. Mary of Nazareth Hospital	Chicago	....	...	...	...	..	..	..	...
South Shore Hospital[1-3]	Chicago	H. H. Hamlin	6,135	1,600	169	53	2	2	200
Decatur and Macon County Hospital[1]	Decatur, Ill.	A. F. Goodyear	...	...	...	..	2	2	150
Methodist Hospital of Central Illinois[1-3]	Peoria, Ill.	C. R. Smith	2,382	...	140	45	2	2	200
Swedish-American Hospital	Rockford, Ill.	C. W. Fredberg	8,296	6,220	204	90	2	2	200
St. Francis Hospital[1]	Beech Grove, Ind.	H. F. Kennedy	8,061	5,917	152	47	4	4	300
Methodist Hospital[1]	Gary, Ind.	M. Shellhouse	10,664	11,337	432	125	1	2	200
St. Margaret [illegible]	[illegible]	J. L. Van Drunen	12,543	11,714	253	51	2	4	175
Methodist Ho[illegible]	[illegible]	....	511	...	56	12	2	2	...
St. Elizabeth Hospital[1-3]	Lafayette, Ind.	L. C. Smith	9,212	3,353	322	115	1	3	175
Memorial Hospital[1]	South Bend, Ind.	R. E. Nelson	12,790	11,095	327	152	2	2	250
St. Luke's Methodist Hospital[1-3]	Cedar Rapids, Iowa	H. O. Jirsa	11,034	10,842	273	102	6	6	250
Broadlawns' Polk County Hospital[1-3]	Des Moines, Iowa	A. A. Toubes	...	...	...	..	3	3	150
University Hospitals[1-3]	Iowa City, Iowa	W. B. Bean	...	...	...	..	6	6	75
St. Francis Hospital[1-3]	Wichita, Kans.	C. W. Miller	2,234	...	30	15	1	1	...
Wesley Hospital[1-3]	Wichita, Kans.	G. H. Tonn	3,380	...	64	18	3	3	200
Baton Rouge General Hospital[1]	Baton Rouge, La.	F. A. DeJean	11,698	...	170	58	2	2	300
St. Patrick's Hospital[1-3]	Lake Charles, La.	G. E. Barham	...	...	...	..	2	4	200
St. Anne's Hospital[3]	Fall River, Mass.	J. C. Corrigan	4,515	3,768	68	24	1	1	150
Cooley Dickinson Hospital[1-3]	Northampton, Mass.	L. N. Durgin	6,726	1,110	251	31	4	4	100
Hurley Hospital[1]	Flint, Mich.	L. O. Shantz	...	...	...	..	1	1	300
McLaren General Hospital[1-3]	Flint, Mich.	E. C. Mosier	7,830	2,295	144	86	3	4	325
St. Joseph Hospital[1-3]	Flint, Mich.	J. J. Gutow	10,117	3,340	172	61	6	12	400
Borgess Hospital[1-3]	Kalamazoo, Mich.	F. Doyle	8,023	4,012	216	74	1	2	150
Mercy Hospital[1-3]	Muskegon, Mich.	R. D. Risk	6,396	5,425	154	42	2	2	...

Numerical and other references will be found on pages 373 and 374.

7. GENERAL PRACTICE—Continued

			Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
St. Joseph Mercy Hospital[1-3]	Pontiac, Mich.	N. N. Steinberg	...	...	...	..	1	2	300
St. Luke's Hospital[1-3]	Saginaw, Mich.	H. O. Helmkamp	5,962	4,358	106	60	1	2	300
St. Mary's Hospital	Saginaw, Mich.	T. E. Fleschner	4,823	3,250	161	47	1	2	...
James Decker Munson Hospital[1-3]	Traverse City, Mich.	F. G. Swartz	...	...	...	..	2	4	300
Wyandotte General Hospital[1]	Wyandotte, Mich.	R. H. Proud	10,009	7,751	280	84	6	6	400
Fairview Hospital[1-3]	Minneapolis	M. S. Belzer	...	...	...	..	3	3	300
Lutheran Deaconess Home and Hospital[1-3]	Minneapolis	L. A. Benesh	6,406	3,937	191	44	2	2	200
Mount Sinai Hospital[1-3]	Minneapolis	....	2,263	1,589	24	19	1	1	200
Midway Hospital[1-3]	St. Paul, Minn.	A. E Ritt	...	...	...	..	..	2	300
Mercy Hospital—Street Memorial[1-3]	Vicksburg, Miss.	L. J. Clark	4,716	61,319	126	41	1	2	225
Missouri Methodist Hospital[1]	St. Joseph, Mo.	H. W. Carle	4,026	...	226	86	1	1	200
Alexian Brothers Hospital[3-100]	St. Louis	A. D. Hoffmann	2,935	5,316	193	44	4	4	200
St. Anthony's Hospital[1-3]	St. Louis	W. Gunn	6,305	12,787	48	12	3	3	150
Hunterdon Medical Center	Flemington, N. J.	....	...	...	...	..	..	..	...
Millard Fillmore Hospital[1-3]	Buffalo	M. Cheplove	...	...	...	..	1	2	255
St. Joseph's Hospital[1-3]	Far Rockaway, N. Y.	G. Christmann	6,251	3,477	167	45	7	7	225
Benedictine Hospital[1-3]	Kingston, N. Y.	E. F. Shea J. A. Olivet	...	...	...	..	2	2	250
Kingston Hospital	Kingston, N. Y.	H. L. Rabor	5,591	4,537	199	42	2	2	...
Our Lady of Victory Hospital[3]	Lackawanna, N. Y.	L. J. Makarewicz	3,933	1,893	118	33	1	1	175
Vassar Brothers Hospital[1-3]	Poughkeepsie, N. Y.	D. Malven	9,070	...	...	..	2	2	150
City Hospital[1-3]	Akron, Ohio	D. Leonard	4,825	3,050	496	127	2	4	250
Peoples Hospital[1-3]	Akron, Ohio	D. J. Roberts	...	...	...	..	4	4	250
Mercy Hospital[1-3]	Canton, Ohio	G. C. Dowell	15,136	762	384	142	1	..	200
Christ Hospital[1]	Cincinnati	J. Lindner	...	...	...	..	4	8	200
Good Samaritan Hospital[1-3]	Cincinnati	W. Schmidter	...	...	...	..	4	4	175
White Cross Hospital[1-3]	Columbus	S. P. Cromer	1,702	...	68	22	2	2	375
Euclid-Glenville Hospital[1-3]	Euclid, Ohio	J. B. Price	4,769	...	78	27	4	4	200
Lima Memorial Hospital[1-3]	Lima, Ohio	D. L. Steiner	2,225	...	200	51	4	4	300
St. Rita's Hospital[1-3]	Lima, Ohio	H. G. Illig	1,687	1,231	118	51	1	1	175
Mercy Hospital[1-3]	Toledo, Ohio	C. R. Forrester	1,461	2,549	104	2	1	2	250
St. Vincent's Hospital[1-3]	Toledo, Ohio	M. A. Schnitker	...	...	...	..	1	2	225
Toledo Hospital[1-3]	Toledo, Ohio	C. S. Mundy	4,298	...	54	42	1	2	200
University of Oklahoma Hospitals[1-3]	Oklahoma City	I. H. Brown	...	...	...	..	6	6	50
Bradford Hospital[1-3]	Bradford, Pa.	C. L. Luckett	1,514	...	85	12	2	2	250
St. Joseph's Hospital[1-3]	Lancaster, Pa.	C. H. Witmer	2,976	3,527	157	75	2	3	300
St. John's General Hospital	Pittsburgh	F. J. Santoka	...	...	...	..	3	3	300
Community General Hospital[1-3]	Reading, Pa.	C. S. Kring	...	2,835	...	..	1	1	300
Sharon General Hospital[1]	Sharon, Pa.	J. J. Bellas	10,238	30,046	295	82	3	3	250
Memorial Hospital[1-3]	Pawtucket, R. I.	E. J. Mara	1,121	...	194	43	1	1	150
Greenville General Hospital[1-3]	Greenville, S. C.	....	...	...	...	..	..	..	...
Spartanburg General Hospital[1]	Spartanburg, S. C.	W. T. Hendrix	3,806	8,182	245	52	2	2	150
Sacred Heart Hospital[1]	Yankton, S. D.	C. B. McVay	6,634	17,863	156	63	2	4	300
St. Mary's Memorial Hospital[1-3]	Knoxville, Tenn.	J. L. Raulston	...	...	...	..	2	4	300
Madison Sanitarium and Hospital[1-3]	Madison College, Tenn.	J. C. Gant	1,406	3,902	38	10	3	3	325
Brackenridge Hospital[1]	Austin, Tex.	....	...	...	...	..	3	6	180
All Saints Hospital[1-3]	Ft. Worth, Tex.	J. A. Hallmark	6,591	...	102	35	4	4	250
City-County Hospital[1-3]	Ft. Worth, Tex.	S. W. Wilson	4,793	22,917	370	110	4	5	150
St. Joseph's Hospital[1-3]	Ft. Worth Tex.	W. Higgins	15,017	8,173	325	62	1	1	200
St. Mary's Infirmary[1]	Galveston, Tex.	J. Magliola	2,012	...	...	..	8	12	...
Shannon West Texas Memorial Hospital[1-3]	San Angelo, Tex.	P. J. C. Byars, Jr.	6,115	18,237	158	32	4	4	200
Baptist Memorial Hospital[1-3]	San Antonio, Tex.	R. Kupper	14,128	...	423	132	2	2	150
Robert B. Green Memorial Hospital[1-3]	San Antonio, Tex.	J. A. Bethea	...	...	...	..	2	4	125
Kings Daughters Hospital[1]	Temple, Tex.	....	...	...	...	..	1	2	300
Wichita General Hospital[1-3]	Wichita Falls, Tex.	E. Bebb	1,068	4,313	...	..	3	3	300
Riverside Hospital[1-3]	Newport News, Va.	S. H. Mirmelstein	...	...	...	..	1	2	225
Retreat for the Sick[1-3]	Richmond, Va.	G. Vranian	271	...	28	6	2	3	200
Sheltering Arms Hospital[1-3]	Richmond, Va.	A. K. Sutphin	252	...	66	25	1	1	250
Maynard Hospital[1-3]	Seattle, Wash.	G. N. Rotton	6,292	344	102	53	2	2	200
Providence Hospital[1-3]	Seattle, Wash.	B. T. Fitzmaurice	1,572	...	...	..	2	2	200
Sacred Heart Hospital[1-3]	Spokane, Wash.	R. M. O'Brien	18,261	3,819	547	..	4	4	200
Bluefield Sanitarium[3]	Bluefield, W. Va.	H. F. Warden, Jr.	2,066	...	110	25	3	3	500
Kanawha Valley Hospital[3]	Charleston, W. Va.	R. J. Jones	4,134	3,256	8	2	1	1	200
Memorial Hospital[1-3]	Charleston, W. Va.	J. W. Hash	3,995	3,760	60	31	2	2	240
Ohio Valley General Hospital[1-3]	Wheeling, W. Va.	R. H. Lewellyn	2,907	...	111	30	1	2	325
Evangelical Deaconess Hospital[1-3]	Milwaukee	L. M. Peters	1,134	...	101	45	1	2	250
St. Michael Hospital[1-3]	Milwaukee	E. Kay	5,597	17,478	128	50	3	6	275

8. INTERNAL MEDICINE

The following services have been approved by the Council, the American Board of Internal Medicine, and the American College of Physicians through the Residency Review Committee in Internal Medicine (formerly the Conference Committee on Graduate Training in Medicine) as offering acceptable training in the specialty under any of the several programs leading to eligibility for examination by the American Board of Internal Medicine. (Requirements for Admission to Examination and Certification, page 396.)

Hospitals, 520; Assistant Residencies and Residencies, 4,375

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES AIR FORCE										
U. S. Air Force Hospital[1]	Scott Field, Ill.	W. R. Haas	1,938	27,568	15	11	1	1	1	...
U. S. Air Force Hospital	San Antonio, Tex.	F. W. Wilson	6,444	12,380	10	9	2	2	1	...
UNITED STATES ARMY										
Letterman Army Hospital[1-66]	San Francisco	F. W. Pruitt	3,640	12,445	45	41	6	16	3	...
Fitzsimons Army Hospital[1-66]	Denver	A. A. Biederman	2,030	36,828	24	23	..	..	3	...
Army Medical Center[1-66-67]	Washington, D. C.	P. S. Fancher	2,088	18,006	47	40	7	12	3	...
Percy Jones Army Hospital[1-66]	Battle Creek, Mich.	F. H. Mowrey	1,818	25,617	26	24	1	1	1	...
Valley Forge Army Hospital[1-66]	Phoenixville, Pa.	J. G. Knauer	2,681	10,648	22	21	2	4	3	...
William Beaumont Army Hospital[66]	El Paso, Texas	M. C. Davidson	1,358	1,484	25	21	1	1	1	...
Brooke Army Medical Center[66-250]	San Antonio, Texas	R. E. Blount	2,875	10,945	126	117	..	..	3	...
Madigan Army Hospital[66]	Tacoma, Wash.	W. S. George	626	8,001	9	9	1	1	1	...
Tripler Army Hospital[66]	Honolulu, T. H.	D. J. Sheehan	8,583	52,608	117	104	2	6	3	...

Numerical and other references will be found on pages 373 and 374.

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES NAVY										
[illegible]	Oakland, Calif.	C. C. Shaw	1,297	9,792	24	20	..	6	3	...
[illegible]	San Diego, Calif.	A. L. Lawler	5,211	72,924	178	131	..	7	3	...
[illegible]	Great Lakes, Ill.	J. B. Schuler	4,989	12,129	40	36	2	2	1	...
[illegible]	Bethesda, Md.	C. L. Ferguson	3,633	7,032	70	50	..	7	3	...
[illegible]	Chelsea, Mass.	R. C. Parker, Jr.	977	6,192	..	..	..	4	3	...
[illegible]	St. Albans, N. Y.	L. E. Bach	1,096	7,540	16	13	..	6	3	...
[illegible]	Philadelphia	L. J. Pope	4,296	29,775	328	125	..	6	3	...
[illegible]	Portsmouth, Va.	E. F. Kline	4,445	5,785	37	32	2	2	1	...
UNITED STATES PUBLIC HEALTH SERVICE										
U. S. Public Health Service Hospital [1-3]	San Francisco	F. S. French	2,132	7,398	70	52	1	4	3	...
U. S. Public Health Service Hospital [1-3]	New Orleans	R. H. Smith	2,988	13,120	101	74	1	3	3	...
U. S. Public Health Service Hospital [122]	Baltimore, Md.	L. L. Terry	2,592	22,696	77	60	2	6	3	...
National Institutes of Health—Clinical Center National Heart Institute	Bethesda, Md.	L. L. Terry	...	...	..	..	8	8	1	...
U. S. Public Health Service Hospital	Boston, Mass.	V. J. Dorset	1,694	2,277	36	21	1	3	3	...
U. S. Public Health Service Hospital [1-3]	Staten Island, N. Y.	A. A. Doerner	2,663	15,427	137	79	2	6	3	...
U. S. Public Health Service Hospital [1]	Seattle, Wash.	R. L. Griffith	1,984	13,859	91	63	2	6	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE										
Freedmen's Hospital [1-3]	Washington, D. C.	J. B. Johnson	979	13,911	289	110	..	9	..	...
VETERANS ADMINISTRATION										
Veterans Admin. Hospital [1-3]	Tuskegee, Ala.	E. T. Odom	2,494	171	131	55	6	12	3	...
Veterans Admin. Hospital [1-3]	Little Rock, Ark.	H. R. Hipp	2,281	...	109	80	4	4	3	...
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	T. H. Brem	2,544	2,252	271	225	28	28	3	...
Veterans Admin. Hospital [1-3]	Los Angeles, Calif.	R. O. Egeberg	8,084	7,655	642	513	20	54	3	...
Veterans Admin. Hospital [1]	San Francisco	F. M. Willett	2,225	1,678	186	120	12	20	3	...
Veterans Admin. Hospital [1-3-48]	Denver	T. P. Sears	2,360	...	136	119	8	20	3	...
Veterans Admin. Hospital [1-248]	Newington, Conn.	P. Kunkel	1,291	2,760	91	66	10	18	3	...
Veterans Admin. Hospital [1-3]	Washington, D. C.	L. K. Alpert	1,700	2,719	192	147	1	13	3	...
Veterans Admin. Hospital [1-3-60]	Coral Gables, Fla.	J. Rumball	2,605	848	214	171	6	15	3	...
Veterans Admin. Hospital [1-72-70]	Atlanta, Ga.	M. Michael	2,526	...	147	101	8	14	3	...
Veterans Admin. Hospital [1-3-4]	Augusta, Ga.	D. E. Fader	1,299	2,021	64	44	6	10	2	...
Veterans Admin. Hospital [1]	Hines, Ill.	L. A. Baker	7,902	2,519	491	250	20	53	3	...
Veterans Admin. Hospital [1]	Indianapolis	W. A. Christian	1,973	...	185	132	7	11	3	...
Veterans Admin. Hospital [1-108]	Des Moines, Iowa	P. G. Keil	2,477	3,761	175	131	4	10	3	...
Veterans Admin. Hospital [1]	Iowa City, Iowa	W. M. Kirkendall	1,630	950	59	45	6	14	3	...
Veterans Admin. Hospital [1-3]	Topeka, Kans.	R. Chess	1,438	...	65	49	2	6	3	...
Veterans Admin. Hospital [1-3]	Wadsworth, Kans.	M. Slavin	1,058	8,609	256	196	3	7	3	...
Veterans Admin. Hospital [1-3]	Wichita, Kans.	D. Givner	957	...	73	49	3	3	3	...
Veterans Admin. Hospital [1-3]	Louisville, Ky.	J. R. Gott, Jr.	1,322	1,008	172	99	6	18	3	...
Veterans Admin. Hospital [1]	New Orleans	C. A. Jones	1,981	3,919	131	91	8	14	3	...
Veterans Admin. Hospital [1-3]	Fort Howard, Md.	F. G. Dickey	1,960	391	236	126	4	9	3	...
Veterans Admin. Hospital [1-3]	Perry Point, Md.	S. Goldgraben	1,207	300	16	13	2	4	3	...
Veterans Admin. Hospital [1-3-131]	Boston (Jamaica Plain), Mass.	M. B. Strauss	1,996	1,227	143	97	11	33	3	...
Veterans Admin. Hospital [1-3-132]	Boston (West Roxbury), Mass.	T. A. Warthin	...	...	..	..	..	..	3	...
Veterans Admin. Hospital [1-3]	Dearborn, Mich.	H. J. Kullman	3,614	10,050	294	165	5	15	3	...
Veterans Admin. Hospital [1-3]	Minneapolis	E. B. Flink	2,705	669	191	149	..	33	3	...
Veterans Admin. Hospital [1-3]	Jefferson Bks., Mo.	E. D. Wall	2,962	...	251	139	5	15	3	...
Veterans Admin. Hospital [1-3]	Lincoln, Nebr.	O. V. Calhoun	1,096	1,835	59	47	1	3	3	...
Veterans Admin. Hospital [3]	Omaha, Nebr.	H. J. Zimmerman	1,526	1,890	89	59	5	12	3	...
Veterans Admin. Hospital [1]	Albuquerque, N. M.	W. S. Taylor	1,274	7,024	60	56	2	4	3	...
Veterans Admin. Hospital [1-3-170]	Albany, N. Y.	F. M. Woolsey	990	714	147	113	10	30	3	...
Veterans Admin. Hospital [1-3]	Bath, N. Y.	A. S. Dowling	1,728	21,888	157	108	1	3	3	...
Veterans Admin. Hospital [1-3]	Brooklyn, N. Y.	P. W. Spear	3,520	2,696	289	203	10	31	3	...
Veterans Admin. Hospital [1-3]	Buffalo, N. Y.	G. W. Bissell	3,356	...	206	113	..	12	3	...
Veterans Admin. Hospital [1-3]	New York (Bronx), N. Y.	B. Straus	4,483	20,956	454	273	11	38	3	...
Veterans Admin. Hospital [1-3]	Cleveland, Ohio	N. P. Shumway	3,018	1,200	211	136	..	24	3	...
Veterans Admin. Hospital [1-3]	Dayton, Ohio	A. Tomasulo	3,022	118,754	314	181	20	35	3	...
[illegible]	Oklahoma City	H. L. Schmidt, Jr.	1,149	...	69	56	4	8	3	...
[illegible]	Portland, Ore.	G. O. Bern	2,201	1,167	84	82	5	15	3	...
[illegible]	Aspinwall, Pa.	R. Schwartz	3,882	...	243	131	6	18	3	...
[illegible]	[illegible], R. I.		...	...	..	..	..	..	2	...
[illegible]	[illegible], S. C.	S. L. Zimmerman	3,740	3,034	195	113	2	6	3	...
[illegible]	[illegible], Tenn.	B. R. Gendel	4,718	10,381	189	125	10	29	3	...
[illegible]	[illegible], Tenn.	R. France	2,705	...	113	113	6	11	3	...
[illegible]	[illegible] Texas	C. W. Sensenbach	1,080	...	96	66	2	4	3	...
[illegible]	[illegible] Texas	J. F. Gamble	1,008	616	34	32	8	18	3	...
[illegible]	McKinney, Texas	B. Friedman	2,314	6,486	109	89	9	17	3	...
[illegible]	Salt Lake City	H. Brown	2,694	2,274	103	86	4	10	3	...
[illegible]	[illegible] River Jct., Vt.	A. Yeomans	3,615	17,025	60	57	5	15	3	...
Veterans Admin. Hospital	Richmond, Va.	J. P. Williams	5,218	31,611	155	90	11	27	3	...
Veterans Admin. Hospital	Seattle, Wash.	R. Sevans	1,513	348	141	117	7	15	3	...
Veterans Admin. Hospital	Martinsburg, W. Va.	H. Field, Jr.	973	528	76	51	3	9	3	...
Veterans Admin. Hospital	Milwaukee, Wis.	M. W. Garry	2,004	1,512	81	66	20	20	3	...
Veterans Admin. Hospital [1-3]	San Juan, P. R.	R. Rodrigues-Moline	1,531	570	26	23	2	5	..	...
NONFEDERAL										
Carraway Methodist Hospital [1-3]	Birmingham, Ala.	E. D. Lineberry O. C. McCarn	2,196	5,948	82	28	1	3	3	150
Jefferson-Hillman Hospital [1-3]	Birmingham, Ala.	T. R. Harrison	3,859	8,752	402	126	5	11	3	...
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	G. M. Hankins	2,016	24,446	93	35	3	6	3	225
City Hospital	Mobile, Ala.	J. H. Little	1,381	1,943	189	78	1	1	1	175
St. Mary's Hospital [1-3]	Tucson, Ariz.	S. J. Grauman	12,538	8,267	174	78	2	6	3	...
Tucson Medical Center [1-3-20]	Tucson, Ariz.	D. Engle	784	395	30	12	4	4	1	200
Arkansas Baptist Hospital [1-3]	Little Rock, Ark.	A. Kahn, Jr.	1,928	...	155	27	2	2	1	225
University Hospital [1]	Little Rock, Ark.	B. B. Wells	715	11,293	88	52	1	2	1	120
General Hospital of Riverside County [1-3]	Arlington, Calif.	H. H. Stone	1,248	4,841	268	123	1	1	1	300
Kern General Hospital [1-3]	Bakersfield, Calif.	M. Bruschi	2,129	32,409	283	140	4	8	3	325
Herrick Memorial Hospital [1-3]	Berkeley, Calif.	H. I. Harvey	1,667	4,504	127	84	1	3	3	100
San Joaquin General Hospital [1-3]	French Camp, Calif.	G. K. Wever	2,614	11,747	537	273	2	4	3	235
General Hospital of Fresno County [1-3]	Fresno, Calif.	W. E. Furze	1,386	15,757	295	119	2	3	2	231
Glendale Sanitarium and Hospital [1]	Glendale, Calif.	H. J. Hoxie	4,212	3,939	292	140	1	3	3	164.50
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	E. M. Duvall	3,111	691	243	50	3	3	2	150
California Hospital [1-3-47]	Los Angeles	W. Wessels	2,811	16,177	241	113	2	4	3	150
Cedars of Lebanon Hospital [1-3]	Los Angeles	L. Gunther J. Kahn	3,043	54,876	236	100	1	3	3	150
Hospital of the Good Samaritan [1-3]	Los Angeles	W. H. Grishaw	2,450	6,160	80	32	2	6	3	150

Numerical and other references will be found on pages 373 and 374.

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Los Angeles County Hospital[1]	Los Angeles	E. Shapiro	20,357	63,250	2,687	822	..	31	3	190
Presbyterian Hospital—Olmsted Memorial[1-3]	Los Angeles	J. B. McDonald	604	3,809	23	6	1	3	3	175
Queen of Angels Hospital[1-3]	Los Angeles	M. Blacker	3,469	3,727	317	160	1	4	2	150
St. Vincent's Hospital[3]	Los Angeles	J. C. Ruddock	2,310	...	166	50	1	1	1	150
White Memorial Hospital[1-3]	Los Angeles	J. E. Peterson	1,514	30,236	141	71	1	3	3	146.25
[illegible][1-3-34-44]	Oakland, Calif.	H. Rogers	3,693	27,691	580	181	4	11	3	...
[illegible]	Oakland, Calif.	M. F. Collen	1,929	91,631	161	116	3	9	3	...
[illegible]	Oakland, Calif.	F. B. Taylor	1,365	...	112	49	2	2	1	105
[illegible] Hosp.[1-3]	Pasadena, Calif.	G. T Burke	2,571	16,290	263	132	1	3	3	240
Mercy Hospital[1-3]	San Diego, Calif.	E. M. Fetter	2,637	922	143	59	1	2	8	175
San Diego County General Hospital[1-3]	San Diego, Calif.	W. J. Tighe	2,270	15,273	517	153	4	7	3	150
Children's Hospital[1]	San Francisco	D. W. Atkinson	701	2,516	42	15	1	2	2	125
Franklin Hospital[1-3]	San Francisco	C. Mote	1,665	8,274	129	46	1	4	3	125
French Hospital[1-3]	San Francisco	D. L. Wilbur	4,459	5,720	196	62	2	3	2	125
Mary's Help Hospital[1-3]	San Francisco	F. Rochex	1,219	6,865	90	26	1	2	1	150
Mount Zion Hospital[1-3]	San Francisco	J. J. Sampson	2,957	8,058	196	121	3	6	3	100
St. Joseph's Hospital[1-3]	San Francisco	S. J. Shipman	2,511	691	173	47	1	1	1	150
St. Luke's Hospital[1-3]	San Francisco	E. L. Bruck	2,471	3,707	210	78	3	6	3	200
St. Mary's Hospital[1-3]	San Francisco	J. J. McGinnis	1,815	7,931	83	40	2	5	3	150
San Francisco Hospital										
Stanford University Service[1]	San Francisco	H. D. Brainerd	1,536	...	458	141	2	4	3	75
University of California Service[1-34]	San Francisco	S. J. K. Lewis	1,533	...	436	147	2	4	3	75
Southern Pacific General Hospital[1-3]	San Francisco	R. E. Allen	3,254	32,762	132	74	2	5	3	150
Stanford University Hospitals[1-3]	San Francisco	A. L. Bloomfield	2,453	24,658	144	69	5	11	3	50
University of California Hospital[1-3-40-43]	San Francisco	T. L. Althausen	1,443	21,528	54	37	..	10	3	87
Santa Clara County Hospital[1]	San Jose, Calif.	J. M. Geiger	1,276	7,971	76	42	2	4	3	260
Community Hospital of San Mateo County[1-3]	San Mateo, Calif.	W. F. Knorp	899	...	152	50	1	1	1	400
Santa Barbara Cottage Hospital[1-3-15]	Santa Barbara, Calif.	J. W. Dalton	2,488	757	82	40	3	6	3	115
Harbor General Hospital[1-3-31]	Torrance, Calif.	F. Kellogg W. P. Martin	2,968	14,687	558	153	5	15	3	190
Glockner-Penrose Hospital[1-3]	Colorado Springs	A. M. Mullett	822	158	48	15	1	1	1	200
St. Anthony Hospital[1-3]	Denver	A. D. Riemer	3,113	119	207	64	1	1	3	225
St. Joseph's Hospital[1]	Denver	R. J. Savage	3,121	...	181	88	1	3	3	150
St. Luke's Hospital[1-3]	Denver	B. Murphey	...	...	..	..	1	1	1	150
University of Colorado Medical Center		...	...	...	..	..	8	18	..	150
Colorado General Hospital[1-3-22]	Denver	G. Meiklejohn	945	17,338	150	111	..	..	3	...
Denver General Hospital[1-3-22]	Denver	G. Meiklejohn	2,577	1,901	453	261	..	..	3	...
Colorado State Hospital[1-3]	Pueblo, Colo.	G. R. Curless	1,222	3,660	238	101	3	6	8	275
Corwin Hospital[1-3]	Pueblo, Colo.	R. H. Finney	3,552	8,849	94	30	1	1	1	125
Bridgeport Hospital[1-3]	Bridgeport, Conn.	I. S. Zaur	2,359	...	294	79	1	2	2	125
St. Vincent's Hospital[1-3]	Bridgeport, Conn.	V. Lynch	2,861	435	281	47	1	2	2	...
Hartford Hospital[1-3-50]	Hartford, Conn.	M. T. Root	4,333	10,460	411	201	4	6	3	50
J. J. McCook Memorial Hospital[1-3]	Hartford, Conn.	W. Smith	2,684	11,787	155	56	1	2	2	250
St. Francis Hospital[1-3-58-59]	Hartford, Conn.	J. R. Lenehan	3,767	8,707	373	92	1	3	3	100
New Britain General Hospital[1-3]	New Britain, Conn.	J. C. White	1,979	...	207	88	1	2	2	130
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	...	3,023	23,031	324	148	..	..	3	...
General Service		T. S. Evans	...	...	..	..	..	1	..	50
University Service		P. B. Beeson	...	...	..	..	8	20	..	50
Hospital of St. Raphael[3-60]	New Haven, Conn.	T. S. Evans	2,295	2,260	401	106	3	7	3	100
Lawrence and Memorial Associated Hospitals[1-3]	New London, Conn.	A. Labensky	2,144	...	170	38	2	2	1	250
Norwalk Hospital[1-3]	Norwalk, Conn.	D. L. Ellrich	1,659	729	181	63	2	2	2	180
St. Mary's Hospital[1-3]	Waterbury, Conn.	W. Finkelstein	3,611	1,869	298	65	2	5	3	150
Waterbury Hospital[1]	Waterbury, Conn.	O. J. Bizzozero	5,085	6,209	265	133	2	6	3	125
Delaware Hospital[1-3]	Wilmington, Del.	L. B. Flinn	2,274	8,373	209	104	2	5	3	180
Memorial Hospital[1-3]	Wilmington, Del.	L. B. Flinn	1,531	4,101	164	81	1	3	3	175
Wilmington General Hospital[1-3]	Wilmington, Del.	J. R. Durham, Jr.	1,775	1,667	88	29	2	2	3	250
Central Dispensary and Emergency Hospital[1-3]	Washington, D. C.	J. Minor	2,512	7,233	211	88	2	5	3	225
Doctors Hospital[1-3]	Washington, D. C.	A. McNitt	1,782	...	110	70	1	2	3	200
Gallinger Municipal Hospital[1-3]	Washington, D. C.	H. H. Hussey M. Romansky	3,861	17,595	797	297	18	20	3	...
Garfield Memorial Hospital[1-3]	Washington, D. C.	J. L. Thompson, Jr.	1,294	1,281	103	56	1	5	3	160
Georgetown University Hospital[1-3-120-200]	Washington, D. C.	H. Jeghers	3,058	9,285	193	103	6	22	3	...
George Washington University Hosptial[1-3]	Washington, D. C.	T. McP. Brown	3,561	10,286	191	114	2	8	3	130
Providence Hospital[1-3]	Washington, D. C.	J. Finnegan	1,932	10,240	176	61	1	3	3	200
Duval Medical Center[1-3]	Jacksonville, Fla.	K. B. Hanson	1,668	23,836	276	100	2	5	3	150
Riverside Hospital[1-3]	Jacksonville, Fla.	J. W. Merritt	836	7,032	38	24	1	1	1	150
St. Luke's Hospital[1]	Jacksonville, Fla.	J. L. Borland	2,228	...	145	29	1	1	1	200
St. Vincent's Hospital[1-3]	Jacksonville, Fla.	L. E. Geeslin	1,760	...	112	33	1	3	8	135
Jackson Memorial Hospital[1]	Miami, Fla.	F. H. Stewart	3,635	10,610	506	218	6	11	3	75
Mount Sinai Hospital[1-3]	Miami Beach, Fla.	D. A. Nathan	2,617	3,387	203	61	1	3	3	...
St. Francis Hospital[1-3]	Miami Beach, Fla.	D. G. Stannus	2,110	1,957	145	34	2	2	1	200
Orange Memorial Hospital[1-3]	Orlando, Fla.	F. Mathers	1,916	1,060	189	57	1	3	2	125
Tampa Municipal Hospital[1-3]	Tampa, Fla.	H. P. Hampton	1,873	4,576	248	89	1	1	1	125
Crawford W. Long Memorial Hospital[1-3]	Atlanta, Ga.	L. Henry	3,042	1,092	238	79	4	7	3	87.50
Georgia Baptist Hospital[1-3]	Atlanta, Ga.	J. P. Garner	...	...	..	..	..	..	3	...
Grady Memorial Hospital[1-3]	Atlanta, Ga.	E. B. Ferris, Jr.	2,159	88,724	376	267	8	13	3	20
Piedmont Hospital[1]	Atlanta, Ga.	C. Smith	1,094	...	49	26	1	3	3	160
St. Joseph's Infirmary[1-3]	Atlanta, Ga.	W. C. Waters	1,466	1,148	98	47	1	2	3	160
University Hospital[78]	Augusta, Ga.	V. P. Sydenstricker	2,817	...	328	63	6	18	3	160
Emory University Hospital[1-3-72-73]	Emory University, Ga.	E. Ferris	2,589	...	130	74	6	15	3	170
Alexian Brothers Hospital[3]	Chicago	F. A. Knoepfler	1,810	...	184	90	2	2	1	125
American Hospital[1-3]	Chicago	M. Afremow	1,001	...	13	2	2	2	2	50
Augustana Hospital[1-3]	Chicago	C. A. Hedberg	3,993	2,974	251	124	3	6	3	150
Columbus Hospital[3-82]	Chicago	E. F. Foley	1,729	385	23	11	2	6	3	...
Cook County Hospital[1-3-83]	Chicago	E. F. Foley	17,042	33,029	3,734	536	36	36	3	50
Englewood Hospital[3]	Chicago	F. Stenn	2,050	...	135	57	1	1	1	200
Grant Hospital[1-3]	Chicago	A. VanderKloot	1,743	1,237	151	81	2	2	3	...
Henrotin Hospital[1-3]	Chicago	F. K. Hick	1,000	...	39	19	1	1	1	200
Hospital of St. Anthony de Padua	Chicago	...	...	...	..	..	..	..	2	...
Illinois Central Hospital[1]	Chicago	L. H. Sloan	2,494	20,000	159	65	2	2	1	...
Illinois Masonic Hospital[1-3]	Chicago	R. H. Hayes	3,547	12,088	316	135	2	5	2	85
Loretto Hospital[1-3]	Chicago	S. G. Plice	795	...	80	45	1	1	1	200
Lutheran Deaconess Hospital[1-3]	Chicago	G. O. Solem	1,773	870	192	69	1	1	1	200
Mercy Hospital[1-3]	Chicago	G. F. O'Brien	1,747	29,774	146	54	2	4	3	100
Michael Reese Hospital[1-3-12]	Chicago	R. Levine	2,178	32,187	128	67	4	12	3	50
Mount Sinai Hospital[1-3]	Chicago	I. A. Rabens	2,960	35,703	293	94	2	5	3	100
Northwestern University Medical Center[23-84]	Chicago	A. R. Colwell	...	29,895	..	..	13	45	..	...
Passavant Memorial Hospital[1-3]	Chicago	A. R. Colwell	2,724	...	135	85	..	..	3	50
Wesley Memorial Hospital[1-3]	Chicago	P. S. Rhoads	6,046	...	305	182	..	..	3	50
Evanston Hospital[1-3]	Evanston, Ill.	L. D. Snorf	3,941	...	222	167	..	..	3	50

Numerical and other references will be found on pages 373 and 374.

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Norwegian American Hospital $^{1-3}$	Chicago	M. Gethner	1,450	...	155	40	1	2	1	150
Presbyterian Hospital $^{1-3}$	Chicago	E. Gray	3,886	29,888	181	111	3	7	3	125
Provident Hospital $^{1-3}$	Chicago	A. F. Connor	...	...	..	..	1	3	3	...
Ravenswood Hospital $^{1-3}$	Chicago	R. H. Johnstone	2,246	881	212	139	2	8	2	75
St. Anne's Hospital $^{1-3}$	Chicago	S. G. Plice	2,154	...	279	65	2	2	1	200
St. Elizabeth Hospital ^{3}	Chicago	L. J. Latz	2,037	...	163	44	1	1	1	125
St. Joseph Hospital $^{1-3}$	Chicago	L. Hines	1,263	934	113	25	2	2	1	200
St. Luke's Hospital $^{1-3}$	Chicago	....	...	...	..	..	3	9	3	...
St. Mary of Nazareth Hospital	Chicago	C. E. Thompson	2,406	991	285	78	1	3	3	150
University of Chicago Clinics $^{1-3}$	Chicago	W. Adams	2,579	17,451	140	102	8	22	3	175
University of Illinois Research and Educational Hospitals $^{1-3-85}$	Chicago	H. F. Dowling	968	13,472	69	60	2	10	3	60
Women and Children's Hospital $^{1-3}$	Chicago	M. Ortmayer	611	1,452	46	9	1	1	1	100
Woodlawn Hospital $^{1-3}$	Chicago	A. J. Brislen	697	101	15	6	1	1	1	150
St. Francis Hospital $^{1-3}$	Evanston, Ill.	R. M. Jones	2,197	2,803	245	128	1	3	3	150
Little Company of Mary Hospital $^{1-3}$	Evergreen Park, Ill.	R. E. Lee	3,296	...	299	61	2	2	1	175
West Suburban Hospital	Oak Park, Ill.	J. C. McMillan, Jr.	1,715	1,501	256	91	2	2	1	150
St. Francis Hospital $^{1-3}$	Peoria, Ill.	H. A. Warren	3,101	10,695	275	73	2	3	2	...
Clinic Hospital ^{1}	Bluffton, Ind.	A. C. Nickel	...	...	..	..	1	2	3	300
Indianapolis General Hospital ^{1}	Indianapolis	P. Fouts	1,681	9,219	353	160	4	12	3	150
Indiana University Medical Center ^{1}	Indianapolis	J. O. Ritchey	2,464	9,744	192	123	3	7	3	150
Methodist Hospital $^{1-3}$	Indianapolis	W. A. Shullenberger	3,265	8,282	236	76	1	3	3	...
St. Vincent's Hospital ^{1}	Indianapolis	R. M. Vandivier	1,736	7,151	245	119	1	3	3	250
St. Elizabeth Hospital $^{1-3}$	Lafayette, Ind.	R. A. Flack	3,014	4,095	242	82	2	5	3	175
Ball Memorial Hospital $^{1-3}$	Muncie, Ind.	R. R. Owens	15,940	...	173	14	1	1	3	150
Iowa Methodist Hospital $^{1-3}$	Des Moines, Iowa	C. Sones	2,928	...	181	67	1	3	3	100
University Hospitals $^{1-3}$	Iowa City, Iowa	W. B. Bean	2,710	2,000	156	105	8	20	3	75
Halstead Hospital ^{1}	Halstead, Kans.	....	2,653	15,485	31	9	2	6	3	200
University of Kansas Medical Center $^{1-3-100}$	Kansas City, Kans.	E. G. Dimond	2,293	24,616	176	110	..	25	3	125
St. Francis Hospital $^{1-3}$	Wichita, Kans.	G. F. Corrigan	3,552	...	168	66	1	3	1	...
Wesley Hospital $^{1-3}$	Wichita, Kans.	G. R. Corrigan	2,198	...	136	57	1	3	3	200
Good Samaritan Hospital $^{1-3}$	Lexington, Ky.	J. Scott	1,868	...	146	43	1	1	..	225
St. Joseph Hospital $^{1-3}$	Lexington, Ky.	J. W. Scott	2,031	1,230	131	65	1	3	2	140
Kentucky Baptist Hospital ^{1}	Louisville, Ky.	S. Smith	2,124	...	140	37	3	3	1	200
Louisville General Hospital $^{1-3}$	Louisville, Ky.	J. M. Kinsman	1,774	31,252	443	159	8	16	3	125
St. Joseph Infirmary $^{1-3}$	Louisville, Ky.	J. S. Llewellyn	3,837	477	242	81	1	3	3	...
Charity Hospital of Louisiana										
Independent Unit $^{1-3}$	New Orleans	J. O. Weilaecher	1,768	22,184	239	104	3	8	3	40
Louisiana State Unit $^{1-3}$	New Orleans	E. Hull	2,893	33,108	417	159	5	12	3	40
Tulane Unit $^{1-3}$	New Orleans	G. E. Burch	3,106	31,321	454	183	5	12	3	40
Hotel Dieu, Sisters Hospital ^{1}	New Orleans	E. deS. Matthews	2,826	669	229	44	3	3	2	200
Ochsner Foundation Hospital $^{1-3}$	New Orleans	W. R. Arrowsmith	2,399	31,141	73	43	4	12	3	150
Southern Baptist Hospital ^{1}	New Orleans	B. O. Morrison	5,694	...	302	..	1	3	3	225
Touro Infirmary ^{1}	New Orleans	S. Jacobs	4,250	18,721	247	105	2	6	3	35
Confederate Memorial Medical Center ^{1}	Shreveport, La.	M. D. Hargrove	4,002	41,398	301	130	3	9	3	60
Central Maine General Hospital ^{1}	Lewiston, Maine	M. A. Chapin	1,406	1,043	151	58	1	1	1	150
Maine General Hospital $^{1-3}$	Portland, Maine	E. R. Blaisdell	1,806	8,603	182	62	3	5	3	100
Baltimore City Hospitals $^{1-3-118}$	Baltimore	G. S. Mirick	1,663	5,591	301	108	3	8	3	75
Church Home and Hospital $^{1-3}$	Baltimore	Z. R. Morgan	925	1,151	93	27	1	3	3	200
Franklin Square Hospital $^{1-3}$	Baltimore	W. H. Smith	671	...	52	13	1	3	3	...
Hospital for Women $^{1-3}$	Baltimore	W. Allen	551	4,913	26	9	1	2	3	...
Johns Hopkins Hospital $^{1-3-6}$	Baltimore	A. McG. Harvey	1,887	32,667	289	190	..	9	3	...
Lutheran Hospital $^{1-3}$	Baltimore	L. A. M. Krause	1,481	1,678	...	...	2	5	3	120
Maryland General Hosptal $^{1-3}$	Baltimore	E. F. Cotter	1,009	97	128	20	3	6	2	100
Mercy Hospital $^{1-3}$	Baltimore	H. R. Peters	1,411	5,961	183	75	3	6	3	250
Provident Hospital and Free Dispensary $^{1-3}$	Baltimore	J. D. Carr	477	482	107	4	3	3	2	...
St. Agnes Hospital $^{1-3}$	Baltimore	L. P. Gundry	1,730	609	122	21	1	3	3	125
St. Joseph's Hospital $^{1-3}$	Baltimore	F. J. Geraghty	1,481	2,728	174	40	2	3	2	200
Sinai Hospital $^{1-3}$	Baltimore	M. Sherry	1,667	6,780	177	86	3	6	3	85
South Baltimore General Hospital $^{1-3}$	Baltimore	L. P. Gundry	743	1,431	84	31	2	3	2	...
Union Memorial Hospital $^{1-3}$	Baltimore	W. A. Baetjer	1,995	2,143	225	96	4	6	3	65
University Hospital $^{1-3}$	Baltimore	M. C. Pincoffs	2,065	10,236	250	116	5	12	3	50
Beverly Hospital $^{1-3}$	Beverly, Mass.	A. E. Parkhurst	1,693	1,247	131	69	1	1	1	100
Beth Israel Hospital $^{1-3}$	Boston	H. L. Blumgart	2,595	9,338	200	107	12	26	3	41.83
Boston City Hospital $^{1-3-18}$	Boston	....	12,154	53,589	1,833	667	26	51	3	112
Carney Hospital $^{1-3}$	Boston	N. A. Welch	772	3,145	75	18	2	2	2	125
Faulkner Hospital $^{1-3}$	Boston	J. R. Graham	978	...	80	47	2	3	2	133
Lahey Clinic $^{1-3}$	Boston	F. N. Allan	4,282	47,696	88	...	16	29	3	150
Massachusetts General Hospital $^{1-3-145}$	Boston	W. Bauer	5,903	18,610	431	297	10	14	3	100
Massachusetts Memorial Hospitals $^{1-3}$	Boston	C. Keefer	1,688	12,400	134	78	2	10	3	100
New England Center Hospital $^{1-3-18}$	Boston	S. Proger	4,712	...	65	42	11	19	3	50
New Englanld Deaconess Hospital $^{1-3-140}$	Boston	H. F. Root	2,700	...	63	88	8	9	2	150
Peter Bent Brigham Hospital $^{1-3}$	Boston	G. W. Thorn	2,688	27,337	257	186	6	17	3	25
St. Elizabeth's Hospital $^{1-3}$	Boston	S. McGinn	2,270	4,330	151	91	1	1	1	125
Cambridge City Hospital $^{1-3-142}$	Cambridge, Mass.	E. J. Vogel	1,514	4,740	229	67	2	4	2	125
Mount Auburn Hospital $^{1-3}$	Cambridge, Mass.	D. Hurwitz	1,356	3,278	153	62	..	4	1	115
Lawrence F. Quigley Memorial Hospital $^{1-3}$	Chelsea, Mass.	W. R. Obler	819	44,527	64	26	..	3	1	255
Truesdale Hospital $^{1-3}$	Fall River, Mass.	W. Mason	1,180	1,132	111	52	1	1	1	75
Lynn Hospital $^{1-3}$	Lynn, Mass.	C. A. Palladino	1,875	3,459	255	54	..	2	2	150
Malden Hospital $^{1-3}$	Malden, Mass.	E. G. Thorp	1,522	...	99	47	2	3	1	100
Newton-Wellesley Hospital $^{1-3}$	Newton Lower Falls, Mass.	E. E. Kattwinkel	2,448	2,293	65	26	1	2	2	170
Salem Hospital $^{1-3}$	Salem, Mass.	S. N. Gardner	1,537	329	162	53	1	1	1	125
Springfield Hospital $^{1-3}$	Springfield, Mass.	O. J. Menard	1,431	1,445	205	78	2	4	3	75
Memorial Hospital $^{1-3}$	Worcester, Mass.	R. W. Robinson	2,247	696	125	62	1	2	1	200
St. Vincent Hospital $^{1-3}$	Worcester, Mass.	J. T. Brosnan	2,320	...	219	58	2	5	3	175
Worcester City Hospital $^{1-3}$	Worcester, Mass.	E. Budnitz	2,460	...	405	152	1	2	3	200
St. Joseph's Mercy Hospital $^{1-3}$	Ann Arbor, Mich.	M. Marshall	2,513	...	159	67	4	7	3	200
University Hospital $^{1-3}$	Ann Arbor, Mich.	C. C. Sturgis	5,460	34,440	235	160	10	36	3	134.16
Leila Y. Post Montgomery Hospital	Battle Creek, Mich.	....	...	...	..	..	..	..	3	...
Alexander Blain Hospital $^{1-3}$	Detroit	J. W. Kingsley	1,406	10,855	27	4	2	5	2	250
City of Detroit Receiving Hospital $^{1-3-46}$	Detroit	G. B. Myers	3,802	44,852	770	421	10	27	3	254
Detroit Memorial Hosptial $^{1-3}$	Detroit	J. Rom	2,847	1,775	210	90	1	3	3	225
Evangelical Deaconess Hospital $^{1-3}$	Detroit	L. Stern	1,910	1,532	203	74	1	3	3	200
Florence Crittenton Hospital ^{1}	Detroit	W. B. Cooksey	1,042	28	93	36	1	1	1	225
Grace Hospital $^{1-3}$	Detroit	D. Myers	4,774	...	379	102	3	9	3	225
Harper Hospital $^{1-3}$	Detroit	E. D. Spalding	3,071	18,889	252	92	4	8	3	225
Henry Ford Hospital $^{1-3}$	Detroit	J. G. Mateer	6,361	160,919	324	210	22	80	3	225
Jennings Memorial Hospital ^{1}	Detroit	E. K. Carmichael	1,746	...	138	45	1	3	3	350
Mount Carmel Mercy Hospital ^{1}	Detroit	H. L. Smith	4,164	1,289	366	143	3	9	3	225
Providence Hospital $^{1-3}$	Detroit	L. J. Bailey	3,016	...	305	114	1	3	3	250
St. Joseph Mercy Hospital ^{1}	Detroit	E. Maire	2,187	2,185	111	38	1	3	3	225
Woman's Hospital $^{1-3}$	Detroit	B. B. Johnstone	1,645	143	90	29	1	2	3	250

Numerical and other references will be found on pages 373 and 374.

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	M. R. McQuiggan	3,100	6,297	620	250	7	21	3	278.33
Hurley Hospital [1]	Flint, Mich.	*M. S. Chambers*	*5,071*	...	*357*	*127*	*2*	*6*	*3*	*300*
McLaren General Hospital [1-3]	Flint, Mich.	G. E. Drewyer	1,411	1,430	86	41	1	3	3	325
Blodgett Memorial Hospital [1-3-146-151]	Grand Rapids, Mich.	G. W. Balyeat	1,265	347	100	57	1	3	3	200
Butterworth Hospital [1-3]	Grand Rapids, Mich.	L. P. Ralph	1,531	626	183	71	1	3	3	225
St. Mary's Hospital [1]	Grand Rapids, Mich.	J. R. Brink	1,583	48	183	81	1	3	3	200
Highland Park General Hospital [1]	Highland Park, Mich.	J. K. Bell	1,415	691	100	87	1	3	3	...
Bronson Methodist Hospital [1]	Kalamazoo, Mich.	J. V. Fopeano	1,907	973	140	71	1	3	3	250
Edward W. Sparrow Hospital	Lansing, Mich.	F. C. Swartz	6,301	3,426	...	...	1	3	3	325
St. Lawrence Hospital [1]	Lansing, Mich.	F. W. Swartz	2,909	...	218	88	2	8	3	...
Pontiac General Hospital [1-3-153-154]	Pontiac, Mich.	D. S. Smith	2,644	...	150	54	1	3	3	225
St. Joseph Mercy Hospital [1-3]	Pontiac, Mich.	....	...	...	..	..	..	..	3	...
Saginaw General Hospital [1-3]	Saginaw, Mich.	B. M. Bullington	1,795	856	127	95	1	3	3	220
St. Mary's Hospital [1-3]	Duluth, Minn.	D. W. Wheeler	1,863	...	152	71	1	1	1	215
Asbury Methodist Hospital [1-3]	Minneapolis	R. Berman	1,334	...	100	48	1	1	1	250
Minneapolis General Hospital [1-3-156]	Minneapolis	T. Lowry	1,679	11,786	236	113	3	0	3	169
Mount Sinai Hospital [1-3]	Minneapolis	....	1,809	...	112	56	1	1	3	200
Northwestern Hospital [1-3]	Minneapolis	C. A. McKinlay	2,254	...	117	74	1	2	2	200
St. Barnabas Hospital [1-3]	Minneapolis	D. H. Correa	1,917	...	139	78	1	2	2	175
University of Minnesota Hospitals [1-3]	Minneapolis	C. J. Watson	1,789	23,402	146	118	5	13	3	150
Mayo Foundation [1-3]	Rochester, Minn.	....	48,459	148,396	386	293	46	140	3	150
Ancker Hospital [1-3]	St. Paul, Minn.	J. F. Briggs	1,361	5,482	202	130	2	6	3	150
Charles T. Miller Hospital [1-3]	St. Paul, Minn.	C. N. Hensel E. T. F. Richards	2,259	11,142	93	51	2	2	3	150
St. Joseph's Hospital [1-3]	St. Paul, Minn.	J. M. Ryan	2,327	716	63	31	1	1	1	150
St. Louis County Hospital [1-3]	Clayton, Mo.	R. Muether	818	13,237	191	92	2	4	3	225
Kansas City General Hospital No. 1	Kansas City, Mo.	A. M. Ginsberg	2,195	22,313	399	231	4	13	3	75
Menorah Hospital Medical Center [1-3]		A. M. Ginsberg	3,037	8,375	133	58	3	6	3	151.50
Research Hospital [1-3]		R. C. Davis	1,773	20,789	216	118	1	3	3	175
St. Joseph Hospital [3]		R. Jones	2,479	8,036	182	99	1	4	3	200
St. Luke's Hospital [1-3]		H. P. Boughnou	3,491	...	162	105	2	4	3	175
St. Mary's Hospital [1-3]		H. M. Parker	2,284	...	176	89	2	2	1	200
Barnes Hospital [1-3]	St. Louis	W. B. Wood	4,533	49,196	293	230	12	23	3	50
De Paul Hospital [1-3]	St. Louis	L. D. Cassidy	2,400	1,520	241	85	1	3	3	185
Homer G. Phillips Hospital [1-3]	St. Louis	J. R. Smith	3,092	88,048	636	95	6	20	3	199
Jewish Hospital [1-3-159]	St. Louis	A. E. Strauss	3,307	9,195	804	112	4	8	3	100
Missouri Baptist Hospital [1-3]	St. Louis	J. L. Horner	2,475	...	231	52	2	4	1	...
Missouri Pacific Hospital [3]	St. Louis	L. B. Harrison	3,365	71,759	177	58	4	7	3	250
St. Anthony's Hospital [1-3]	St. Louis	R. V. Powell	2,709	...	149	86	1	1	1	150
St. John's Hospital [1-3]	St. Louis	C. H. Neilson	2,187	4,448	194	69	2	4	3	150
St. Louis City Hospital [1-3]	St. Louis	R. Glaser W. A. Knight, Jr.	3,852	17,195	634	281	12	24	3	137.75
St. Luke's Hospital [1-3]	St. Louis	P. O. Hagemann	1,323	3,135	100	47	1	3	3	...
St. Mary's Group of Hospitals [1-3]	St. Louis	P. A. Timulty	3,367	26,501	286	168	5	17	3	65
Montana Deaconess Hospital [1-3]	Great Falls, Mont.	F. R. Schemm	1,357	...	93	48	..	5	3	200
Creighton Memorial-St. Joseph's Hospital [1]	Omaha, Neb.	H. N. Neu	3,792	13,021	265	97	2	8	3	150
University of Nebraska Hospital [1-3]	Omaha, Neb.	W. B. Moody	531	4,732	38	32	2	5	3	175
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	J. W. Wright	3,615	17,025	78	61	5	16	3	170
Atlantic City Hospital [1-3]	Atlantic City, N. J.	D. W. Scanlan	1,333	9,592	255	70	2	6	3	150
Cooper Hospital [1-3]	Camden, N. J.	R. L. Sharp	1,796	1,978	260	101	1	1	3	200
Englewood Hospital [1-3]	Englewood, N. J.	W. W. Schmidt	998	1,651	174	44	1	1	1	150
Hackensack Hospital	Hackensack, N. J.	L. W. Black	2,097	6,316	397	127	3	4	2	100
Medical Center—Jersey	Jersey City, N. J.	T. J. White	4,953	24,128	765	161	8	23	3	66.75
Monmouth Memorial Hospital [1-3]	Long Branch, N. J.	F. J. Altschul	1,684	4,258	227	65	2	3	2	200
Mountainside Hospital [1-3]	Montclair, N. J.	E. G. Guilford	2,503	6,780	250	100	1	3	3	175
Burlington County Hospital [1-3]	Mt. Holly, N. J.	P. S. MacNeal	564	248	62	27	2	2	1	100
Fitkin Memorial Hospital [1-3]	Neptune, N. J.	L. A. Albright	1,880	2,128	260	41	1	2	2	200
Newark Beth Israel Hospital [1-3]	Newark, N. J.	H. Goldberg	2,126	12,055	279	105	1	3	3	75
Newark City Hospital [1-3]	Newark, N. J.	J. Levin	3,331	7,596	762	156	3	6	3	115
St. Michael's Hospital [1-3]	Newark, N. J.	N. A. Antonius	2,483	1,988	258	82	1	3	3	...
St. Peter's General Hospital [3]	New Brunswick, N. J.	J. Sandella	1,073	934	162	38	1	1	1	175
Orange Memorial Hospital [1-3]	Orange, N. J.	C. H. Ethridge P. W. Marquis	1,928	3,543	285	100	1	1	1	120
Paterson General Hospital [1-3]	Paterson, N. J.	V. E. Leach A. G. Markel	1,446	1,115	228	42	2	2	1	100
Mercer Hospital [1-3]	Trenton, N. J.	J. F. Pessel	1,607	1,244	207	65	1	1	1	150
St. Francis Hospital [1-3]	Trenton, N. J.	P. Corrigan	5,213	3,685	239	62	1	4	2	210
Albany Hospital [1-3]	Albany, N. Y.	R. T. Beebe	2,892	6,398	275	150	2	7	3	135
Binghamton City Hospital [1-3]	Binghamton, N. Y.	G. C. Hamilton	3,127	668	284	84	2	4	3	150
Beth-El Hospital [1-3]	Brooklyn	E. W. Lipschutz	928	18,762	93	8	2	4	3	100
Brooklyn Hospital [1-3]	Brooklyn	E. P. Maynard	1,931	13,310	183	65	4	8	3	100
Coney Island Hospital [1-3]	Brooklyn	M. Mensch	1,373	...	414	74	2	4	3	98.30
Cumberland Hospital [1-3]	Brooklyn	S. P. Bailey	1,979	25,073	324	44	2	5	3	99
Greenpoint Hospital [1-3]	Brooklyn	J. N. Cohen	1,739	32,447	411	38	2	4	2	...
Jewish Hospital [1-3]	Brooklyn	L. Loewe	2,784	13,951	336	112	5	8	2	75
Jewish Sanitarium and Hosp. for Chronic Diseases [1-3]	Brooklyn	M. G. Goldner	772	259	169	42	4	9	3	175
Kings County Hospital [1-3]	Brooklyn	P. Long A. Fankhauser	12,990	56,161	12,297	413	10	29	3	98
Long Island College Hospital [1-3]	Brooklyn	J. H. Crawford	2,256	6,391	219	55	3	5	3	75
Maimonides Hospital [1-3]	Brooklyn	M. M. Banowitch	1,912	22,808	289	97	2	11	3	75
Methodist Hospital [1-3]	Brooklyn	A. T. Mays I. L. Cabot	1,732	6,034	227	49	2	5	3	75
Norwegian Lutheran Deaconesses' Home and Hosp. [1-3]	Brooklyn	A. Andersen	735	930	77	44	1	2	1	100
St. Catherine's Hospital [1-3]	Brooklyn	M. A. Murphy	1,276	3,517	199	67	1	2	3	125
St. John's Episcopal Hospital [1-3]	Brooklyn	E. Marzullo	1,526	3,389	94	15	1	1	1	115
St. Mary's Hospital [1-3]	Brooklyn	V. Annunziata	716	1,311	92	15	1	2	1	175
Wyckoff Heights Hospital [1-3-195]	Brooklyn	J. C. Indelicato	1,087	1,656	212	37	1	3	3	100
Buffalo General Hospital [1-3]	Buffalo	J. H. Talbott	3,675	15,742	337	162	..	6	3	125
Deaconess Hospital [1-3]	Buffalo	M. S. Howland, Jr.	2,588	333	243	64	2	2	3	175
Edward J. Meyer Memorial Hospital [1-194]	Buffalo	D. K. Miller	8,028	36,797	404	150	6	17	3	179
Emergency Hospital of the Sisters of Charity	Buffalo	D. Bramberg	1,110	1,042	143	37	..	..	1	...
Millard Fillmore Hospital [1-3]	Buffalo	J. F. Painton	2,721	1,990	276	115	2	6	3	255
Sisters of Charity Hospital [1-3-193]	Buffalo	H. Brown	4,051	2,031	443	107	2	6	3	210
Clifton Springs Sanitarium and Clinic [1-3]	Clifton Springs, N. Y.	B. A. Watson	2,390	5,436	70	34	1	8	3	100
Mary Imogene Bassett Hospital [1-3]	Cooperstown, N. Y.	J. Bordley, III	879	6,450	70	47	1	3	3	83.33
Flushing Hospital and Dispensary [1-3-197]	Flushing, N. Y.	A. L. Levy	1,954	6,598	217	53	1	3	3	125
Meadowbrook Hospital [1-3]	Hempstead, N. Y.	E. C. Jessup B. R. Allison	1,303	25	310	117	3	7	2	225
Cornell University Infirmary [1-3]	Ithaca, N. Y.	N. S. Moore	2,088	1,906	..	..	4	4	1	208
Tompkins County Memorial Hospital [1-3]	Ithaca, N. Y.	M. Mann	1,242	...	112	28	2	2	1	208.33
Mary Immaculate Hospital [1-3]	Jamaica, N. Y.	G. A. Distler	1,580	3,057	244	45	1	2	2	110

Numerical and other references will be found on pages 373 and 374.

8. INTERNAL MEDICINE—*Continued*

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Queens General Hospital[1-3]	Jamaica, N. Y.	A. A. Fischl	4,926	22,799	1,341	431	7	10	2	93.33
Charles S. Wilson Memorial Hospital[1-3]	Johnson City, N. Y.	J. C. Zillhardt	3,445	13,555	283	111	3	8	3	175
Mount Vernon Hospital[3]	Mount Vernon, N. Y.	P. Reznikoff	1,578	2,468	153	58	1	2	1	125
New Rochelle Hospital[3]	New Rochelle, N. Y.	W. C. Meredith	2,563	3,870	201	66	1	3	3	125
Bellevue Hospital Center										
Division I—Columbia University[1-3]	New York City	D. W. Richards, Jr.	2,165	25,680	243	72	6	12	3	90
Division II—Cornell University[1-3]	New York City	E. H. Luckey	1,974	25,811	206	59	..	13	3	98
Division III—N. Y. University College of Medicine[1-3]	New York City	W. Tillett	2,861	12,893	304	96	13	16	3	98
Division IV—N. Y. University Post-Graduate Medical School[1-3-10-208]	New York City	C. F. Wilkinson	1,505	22,110	238	70	9	29	3	98
Beth David Hospital[1-3]	New York City	H. A. Solomon	1,157	7,638	133	37	1	2	2	125
Beth Israel Hospital[1-3-10]	New York City	A. M. Fishberg	1,587	6,784	147	44	4	4	2	60
Bronx Hospital[1-3]	New York City	M. Weiss	2,037	17,070	180	20	2	4	3	75
Flower and Fifth Avenue Hospitals[1-3]	New York City	L. J. Boyd	1,239	2,936	82	17	3	5	3	...
Fordham Hospital[1-3]	New York City	B. Pasquarelli	3,711	34,783	921	120	9	11	2	93.33
Francis Delafield Hospital	New York City	...	...	...	...	...	..	..	1	...
French Hospital[1-3]	New York City	H. J. McNeile	1,088	2,760	82	18	1	2	2	60
Goldwater Memorial Hospital[1-3]	New York City	R. D. Beck M. Rosenbluth	1,676	1,252	360	71	..	12	3	93
Harlem Hospital[1-3]	New York City	A. Altschul	...	...	..	..	4	10	3	93.3
Hospital for Joint Diseases[1-3]	New York City	M. Dinnerstein	690	16,912	67	18	1	3	2	70
Hospital for Special Surgery[1-3]	New York City	R. H. Freyberg	407	6,732	26	4	3	3	1	100
Jewish Memorial Hospital[1-3]	New York City	D. Greenberg M. A. Miller	1,004	10,461	129	30	1	1	1	150
Knickerbocker Hospital[1-3]	New York City	S. Johnson	2,450	6,883	247	64	1	3	3	110
Lebanon Hospital[1-3]	New York City	D. Greenberg S. Weiskopf	1,930	...	76	12	1	1	1	100
Lenox Hill Hospital[1-3]	New York City	E. A. Lawrence C. de la Chapelle	2,060	7,331	146	46	2	6	2	180
Lincoln Hospital[1-3]	New York City	S. Johnson	2,886	16,754	645	55	4	12	1	65
Memorial Center for Cancer and Allied Diseases[1-3]	New York City	R. W. Rawson L. F. Craver	617	27,823	104	58	12	24	3	98
Metropolitan Hospital[1-3]	New York City	L. J. Boyd	4,728	43,452	702	131	3	9	1	98
Montefiore Hospital[1-3-11]	New York City	L. Leiter	2,116	6,919	217	91	12	21	3	60
Morrisania City Hospital[1-3]	New York City	E. Flood S. Biloon	3,393	9,217	893	104	8	13	2	98
Mount Sinai Hospital[1-3]	New York City	A. B. Gutman	5,137	60,384	394	190	22	32	3	...
New York City Hospital[1-3]	New York City	A. S. Hyman M. B. Rosenblatt	3,254	42,273	502	110	3	10	3	150
New York Hospital[1-3]	New York City	D. P. Barr	3,434	63,611	281	163	14	21	3	25
New York Infirmary[1-3]	New York City	M. Manter	210	1,483	17	8	1	1	1	100
New York Polyclinic Medical School and Hospital[1-3]	New York City	J. Carroll	1,214	20,502	102	23	1	3	3	...
New York University-Bellevue Medical Center		(See also Bellevue Hospital Center, Divisions III and IV; Goldwater Memorial Hospital)								
University Hospital[1-3]	New York City	C. F. Wilkinson	1,681	20,201	140	37	3	5	3	85
Presbyterian Hospital[1-3]	New York City	R. F. Loeb	7,719	35,389	232	139	12	20	3	208.33
Roosevelt Hospital[1-3]	New York City	J. M. Freston A. J. Antenucci	2,389	12,463	225	83	6	12	3	116
St. Barnabas Hospital for Chronic Diseases[1-3]	New York City	R. Wegria	719	3,085	68	30	1	2	2	125
St. Clare's Hospital[1]	New York City	J. P. Croce	1,924	11,753	180	35	1	3	3	50
St. Francis Hospital[1]	New York City	E. P. Flood	1,611	4,186	174	34	2	3	2	125
St. Luke's Hospital[1-3]	New York City	J. H. Keating	3,188	28,108	273	131	6	18	3	60
St. Vincent's Hospital[1-3-224]	New York City	O. LaRotonda	3,137	15,695	481	153	8	15	3	50
Sydenham Hospital[1-3]	New York City	E. Appelbaum	952	3,956	83	15	1	3	1	98
United Hospital[1-3]	Port Chester, N. Y.	N. Schwartz	1,322	1,121	144	46	1	1	1	200
Genesee Hospital[1-3]	Rochester, N. Y.	C. Boller	1,362	6,106	138	88	1	4	3	75
Highland Hospital[1-3]	Rochester, N. Y.	J. R. Williams, Jr.	1,877	718	166	90	2	5	3	100
Rochester General Hospital[1-3]	Rochester, N. Y.	L. Pulsifer	2,350	6,591	251	139	3	9	3	100
St. Mary's Hospital[1-3]	Rochester, N. Y.	L. F. LaPalm	2,937	6,057	..	114	2	6	3	200
Strong Memorial-Rochester Municipal Hospitals[1-3-213]	Rochester, N. Y.	W. S. McCann	4,416	17,673	435	323	..	15	3	41.66
Ellis Hospital[1]	Schenectady, N. Y.	H. Reynolds	3,548	1,074	246	..	2	4	3	...
St. Vincent's Hospital[1-3]	Staten Island, N. Y.	H. A. Cochrane	1,797	910	221	53	1	1	1	150
Staten Island Hospital[1-3]	Staten Island, N. Y.	J. J. Silverman	1,677	1,219	118	63	1	1	1	200
State University of New York Medical Center[1-3-217]	Syracuse, N. Y.	R. H. Lyons	4,935	9,176	482	180	8	20	3	191.66
Grasslands Hospital[1-3]	Valhalla, N. Y.	R. R. Heffner	818	9,150	197	104	1	5	3	125
White Plains Hospital[1-3]	White Plains, N. Y.	E. W. Weber	1,331	1,202	111	41	1	4	3	125
North Carolina Memorial Hospital[1-3]	Chapel Hill, N. C.	C. H. Burnett	1,072	6,202	53	23	5	11	3	116
Charlotte Memorial Hospital	Charlotte, N. C.	J. M. Alexander	2,155	4,760	107	52	1	2	2	150
Duke Hospital[1-3]	Durham, N. C.	E. A. Stead, Jr.	2,780	23,330	151	96	14	34	2	41.33
Watts Hospital[1]	Durham, N. C.	I. H. Manning	2,621	13,373	108	101	2	4	3	150
Rex Hospital[1-3]	Raleigh, N. C.	C. L. Royster	3,231	10,691	195	40	1	1	1	200
James Walker Memorial Hospital[1-3]	Wilmington, N. C.	...	2,613	...	129	30	1	1	1	150
City Memorial Hospital	Winston-Salem, N. C.	C. R. Welfare	1,982	4,798	173	81	2	4	3	200
Kate Bitting Reynolds Memorial Hospital[1]	Winston-Salem, N. C.	R. L. Smith	2,023	7,250	183	42	1	2	2	200
North Carolina Baptist Hospital[1-3-225]	Winston-Salem, N. C.	E. H. Yount	2,142	5,334	118	61	4	9	3	41.66
Bismarck Hospital	Bismarck, N. D.	C. H. Peters	1,614	64,950	89	33	2	2	1	300
St. Luke's Hospital	Fargo, N. D.	W. Stafne	1,334	4,588	76	37	1	1	1	200
City Hospital[1-3]	Akron, Ohio	R. Wilson	4,216	...	496	127	3	6	3	250
Peoples Hospital[1-3]	Akron, Ohio	J. P. Sauvageot	1,470	3,999	144	56	2	4	3	250
St. Thomas Hospital[1-3]	Akron, Ohio	R. B. Smith	2,177	2,158	139	70	2	5	3	250
Aultman Hospital[1-3]	Canton, Ohio	W. A. White	2,808	621	221	109	3	6	3	225
Mercy Hospital[1-3]	Canton, Ohio	I. B. Hamilton	2,992	485	230	97	1	3	3	200
Christ Hospital[1]	Cincinnati	J. H. Skavlem	1,367	7,651	169	61	2	4	3	200
Cincinnati General Hospital[1-3-7-13]	Cincinnati	M. A. Blankenhorn	2,099	27,531	447	225	32	48	3	...
Deaconess Hospital[1-3]	Cincinnati	R. Woolford	3,460	...	138	37	2	2	1	275
Good Samaritan Hospital[1-3]	Cincinnati	E. Schlueter	3,034	...	251	94	3	9	3	175
Jewish Hospital[1-3-230]	Cincinnati	H. B. Weiss	2,413	4,097	294	130	6	11	3	145
St. Mary's Hospital[1-3]	Cincinnati	R. J. Anzinger	825	6,244	174	35	..	..	3	250
City Hospital[1-3]	Cleveland	R. W. Scott	1,967	37,259	504	176	..	..	3	90
Cleveland Clinic Hospital[1-3]	Cleveland	A. C. Ernstene	1,479	31,379	84	33	14	39	3	175
Fairview Park Hospital[1-3]	Cleveland	H. E. Christman	1,701	1,315	122	36	2	2	1	120
Lutheran Hospital[1-3]	Cleveland	M. August	1,467	...	123	50	1	4	3	162
Mount Sinai Hospital[1-3]	Cleveland	M. Siegel	2,447	14,336	282	102	4	8	3	...
St. Alexis Hospital[1-3]	Cleveland	R. R. Bartunek	3,453	4,068	216	81	2	4	3	250
St. John's Hospital[1-3]	Cleveland	W. J. Fornes	2,979	654	165	46	2	4	3	...
St. Luke's Hospital[1-3]	Cleveland	A. D. Nichol	4,017	11,044	314	156	3	7	3	120
St. Vincent Charity Hospital[1]	Cleveland	C. S. Stone	1,890	23,598	207	41	2	6	3	...
University Hospitals[1-3]	Cleveland	J. T. Wearn	3,757	25,929	369	193	12	21	3	25
Mount Carmel Hospital[1]	Columbus, Ohio	P. T. Knies	2,244	1,279	184	52	2	5	3	250

Numerical and other references will be found on pages 373 and 374.

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
University Hospitals										
St. *Francis* Hospital [1-3]	Columbus, Ohio	B. K. Wiseman	882	...	160	66	..	3	3	125
University Hospital [1-3-213]	Columbus, Ohio	B. K. Wiseman	3,142	29,231	241	161	10	33	3	150
White Cross Hospital [1-3]	Columbus, Ohio	R. H. Jacques	2,487	...	68	11	1	3	3	375
Miami Valley Hospital [1-3]	Dayton, Ohio	R. K. Bartholomew	2,504	3,097	316	111	1	3	3	210
Huron Road Hospital [1-3]	East Cleveland, Ohio	E. A. Marshall	1,511	1,619	171	74	2	4	2	210
Marymount Hospital [1-3]	Garfield Heights, Ohio	A. A. Hill	2,503	...	135	66	2	2	1	300
Lakewood Hospital [1-3]	Lakewood, Ohio	J. T. Ledman	1,524	1,278	190	68	2	6	3	150
St. Rita's Hospital [1-3]	Lima, Ohio	F. G. Maurer	813	...	59	26	1	3	3	175
Maumee Valley Hospital [1-3]	Toledo, Ohio	A. A. Applebaum	1,324	9,818	219	95	3	6	3	210
Mercy Hospital [1-3]	Toledo, Ohio	G. W. Bascom	1,950	932	114	55	1	3	1	200
St. Vincent's Hospital [1-3]	Toledo, Ohio	M. A. Schnitker	3,458	...	281	88	2	4	3	225
Toledo Hospital [1-3]	Toledo, Ohio	C. S. Mundy	2,038	771	172	106	1	3	3	200
St. Elizabeth's Hospital [1-3]	Youngstown, Ohio	J. N. McCann	1,091	972	37	16	1	2	2	225
Youngstown Hospital [19]	Youngstown, Ohio	W. H. Bunn	6,976	2,631	417	206	2	6	3	125
St. Anthony Hospital	Oklahoma City, Okla.	P. M. McNeill	2,521	1,262	252	77	1	2	2	150
University Hospitals [1-3]	Oklahoma City, Okla.	S. Wolf	1,177	15,770	144	51	3	6	3	50
Wesley Hospital [1-240]	Oklahoma City, Okla.	W. W. Rucks	1,398	6,254	125	49	1	3	3	150
Hillcrest Medical Center [1]	Tulsa, Okla.	R. M. Wadsworth	2,721	...	138	39	1	3	2	150
St. John's Hospital [1]	Tulsa, Okla.	F. R. Park	2,760	...	200	46	1	3	3	150
Emanuel Hospital [1-3]	Portland, Ore.	W. Scott	2,875	...	238	102	1	3	3	100
Good Samaritan Hospital [1-3]	Portland, Ore.	B. Holcomb	4,618	...	217	114	2	2	1	100
Providence Hospital [1-3]	Portland, Ore.	J. Krygier	3,480	...	231	132	1	3	3	150
St. Vincent's Hospital [1]	Portland, Ore.	H. L. Dick	4,206	93	278	120	2	4	3	165
University of Oregon Medical School Hospitals and Clinics [1]	Portland, Ore.	H. P. Lewis	2,212	23,839	394	253	2	6	3	85
Abington Memorial Hospital [1-3]	Abington, Pa.	J. T. Beardwood	1,809	2,260	195	73	1	2	2	100
Allentown Hospital [1-3]	Allentown, Pa.	C. H. Kelchner	2,167	1,839	315	115	1	1	3	225
Sacred Heart Hospital [1]	Allentown, Pa.	A. W. Dubbs	2,300	9,382	149	63	1	1	2	200
St. Luke's Hospital [1-3]	Bethlehem, Pa.	L. I. Fisher	2,201	1,060	233	104	2	2	3	275
Bryn Mawr Hospital [1-3]	Bryn Mawr, Pa.	W. W. Dyer	1,801	841	185	100	2	4	1	100
George F. Geisinger Memorial Hospital [1-3]	Danville, Pa.	W. J. Stainsby	2,359	11,817	138	51	..	7	2	100
Easton Hospital [1-3]	Easton, Pa.	J. Kincov	2,062	5,265	201	60	2	2	2	200
Hamot Hospital [1-3]	Erie, Pa.	J. R. Tredway	2,710	1,935	221	70	1	1	1	200
Westmoreland Hospital [1-3]	Greensburg, Pa.	E. Highberger	1,358	...	134	44	1	1	2	300
Harrisburg Hospital [1-3]	Harrisburg, Pa.	J. A. Daugherty	2,191	5,569	329	102	1	2	2	200
Harrisburg Polyclinic Hospital	Harrisburg, Pa.	A. W. Cowley	2,432	2,102	126	66	4	4	2	250
Albert Einstein Medical Center										
Northern Division [1-3]	Philadelphia	M. Bernstein	2,748	12,859	244	87	2	6	3	100
Southern Division [1-3]	Philadelphia	A. I. Rubenstone T. H. Mendell	1,900	12,224	168	110	4	4	3	75
Episcopal Hospital [1]	Philadelphia	S. R. Vogel	1,512	5,316	239	94	2	6	3	100
Germantown Dispensary and Hospital [1-3]	Philadelphia	R. W. Mays	2,134	5,110	261	99	1	3	3	150
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	H. L. Bockus	1,066	5,821	69	30	2	4	2	...
Hahnemann Medical College and Hospital [1-3]	Philadelphia	C. L. Brown	2,593	28,443	303	91	2	6	3	50
Hospital of the University of Pennsylvania [1-3]	Philadelphia	F. Wood	3,656	15,430	205	139	..	35	3	...
Hospital of the Woman's Medical College of Pennsylvania [1-3-14]	Philadelphia	W. G. Leaman	962	3,544	42	21	1	5	3	60
Jefferson Medical College Hospital [1-3]	Philadelphia	J. E. Deitrick	2,908	31,925	240	90	13	24	2	...
Lankenau Hospital [1-3]	Philadelphia	E. L. Bortz F. L. Hartmann	1,865	1,797	165	77	2	4	2	100
Methodist Episcopal Hospital [1-3]	Philadelphia	H. F. Robertson	1,145	2,758	122	27	1	2	1	200
Pennsylvania Hospital [1-3]	Philadelphia	G. G. Duncan	2,278	6,088	249	112	9	9	2	20
Philadelphia General Hospital [1-3-9]	Philadelphia	D. N. Kremer	5,311	21,564	991	442	5	16	3	112.34
Presbyterian Hospital [1-3-255]	Philadelphia	J. W. Hundley	1,803	3,773	174	57	1	1	3	100
Temple University Hospital [1-3]	Philadelphia	R. A. Kern	3,024	18,840	214	89	5	15	3	50
Woman's Hospital [1-3]	Philadelphia	M. Easby	912	1,579	62	25	1	2	2	175
Allegheny General Hospital [1-3]	Pittsburgh	M. H. McCaffrey	551	5,299	35	20	..	2	2	150
Elizabeth Steel Magee Hospital [1-3]	Pittsburgh	J. D. Heard	1,351	900	113	17	1	3	3	50
Mercy Hospital [1-3]	Pittsburgh	W. W. G. MacLachlan	1,184	5,105	58	15	1	1	3	150
Montefiore Hospital [1-3]	Pittsburgh	Y. D. Koskoff	2,200	10,617	207	94	3	7	3	58.33
Presbyterian Hospital [1]	Pittsburgh	A. H. Colwell	1,561	...	118	38	3	9	3	50
St. Francis Hospital [1-3]	Pittsburgh	A. P. D'Zmura	2,005	1,872	166	49	1	3	3	150
St. Margaret Hospital [1]	Pittsburgh	C. Bowen	729	1,470	44	20	1	1	1	175
South Side Hospital [1-3]	Pittsburgh	H. Klinzing G. R. Williamson	1,879	1,383	211	58	1	1	2	250
Western Pennsylvania Hospital [1-3]	Pittsburgh	F. A. Evans	2,874	4,062	323	54	1	3	3	225
Reading Hospital [1-3]	Reading, Pa.	J. R. Spannuth	1,783	1,424	280	108	1	2	2	125
St. Joseph's Hospital [1-3]	Reading, Pa.	R. M. Mulligan	...	1,021	..	..	1	1	1	250
Robert Packer Hospital [1-3]	Sayre, Pa.	S. D. Conklin	3,719	15,252	147	63	3	9	3	100
Scranton State Hospital [1-3]	Scranton, Pa.	M. Goldstein	1,319	2,309	208	46	1	1	2	236
Wilkes-Barre General Hospital [1]	Wilkes-Barre, Pa.	G. E. Baker	2,824	2,278	233	62	1	1	1	225
York Hospital [1-3]	York, Pa.	H. B. Thomas	2,058	3,708	377	100	1	1	1	250
Rhode Island Hospital [1-3]	Providence, R. I.	M. N. Fulton	3,200	10,450	495	213	4	10	3	60
Roper Hospital [1-3]	, S. C.	V. Moseley	2,556	38,770	221	67	4	8	3	83
Columbia Hospita	, S. C.	F. E. Zemp	4,384	...	305	69	1	3	3	150
Baroness Erlanger	Tenn.	P. H. Livingston	4,466	7,829	353	63	3	6	3	125
Memorial Hospita:	Tenn.	E. W. Patton	1,663	...	86	32	..	..	1	250
Knoxville General Hospital [1]	Knoxville, Tenn.	R. B. Wood	1,362	6,164	181	41	..	1	1	125
St. Mary's Memorial Hospital [1-3]	Knoxville, Tenn.	B. M. Overholt	601	134	..	..	1	3	3	300
Baptist Memorial Hospital [1-3]	Memphis, Tenn.	O. Warr	5,162	1,440	297	71	1	3	3	100
John Gaston Hospital [1-3]	Memphis, Tenn.	C. H. Sanford	2,718	20,000	633	334	4	10	3	35
St. Joseph Hospital [1-3]	Memphis, Tenn.	S. Blackwell	3,510	523	199	60	1	3	3	...
George W. Hubbard Hospital of Meharry Medical College [1-3]	Nashville, Tenn.	G. Brothers	919	7,738	163	52	2	5	3	125
St. Thomas Hospital [1-3]	Nashville, Tenn.	W. R. Cate	1,704	...	156	63	4	6	2	200
Vanderbilt University Hospitals										
Nashville General Hospital [1-3]	Nashville, Tenn.	R. H. Kampmeier	1,041	9,226	140	32	..	3	3	50
Vanderbilt University Hospital [1-3-207]	Nashville, Tenn.	H. J. Morgan	3,393	24,423	166	91	2	7	3	50
Oak Ridge Institute of Nuclear Studies [1]	Oak Ridge, Tenn.	G. A. Andrews	223	317	30	28	..	2	1	166
Baylor University Hospital [1-3]	Dallas, Texas	H. Winans	4,635	1,890	377	83	2	5	3	75
Methodist Hospital [1-3]	Dallas, Texas	T. S. Barnes	1,985	857	134	37	1	4	3	125
Parkland Hospital [1-3]	Dallas, Texas	D. Seldin	1,103	7,161	253	101	5	8	3	50
St. Paul's Hospital [1-3]	Dallas, Texas	T. M. Kirksey	2,689	4,739	190	56	2	3	3	125
Harris Hospital [1-3]	Fort Worth, Texas	F. Halpin	4,769	1,093	195	70	1	3	2	125
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	C. T. Stone	2,290	27,033	272	157	..	20	3	50
Hermann Hospital [1-3-274-278]	Houston, Texas	J. A. Greene	5,262	7,633	370	125	3	7	3	100
Jefferson Davis Hospital [1]	Houston, Texas	J. A. Greene	2,003	50,032	453	106	4	10	3	50
M. D. Anderson Hospital for Cancer Research [1-3-273]	Houston, Texas	C. D. Howe	2,087	3,459	55	42	2	8	1	...
Methodist Hospital [1-3]	Houston, Texas	H. W. Cummings	1,749	1,004	93	31	1	3	3	100

Numerical and other references will be found on pages 373 and 374.

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Southern Pacific Hospital[3]	Houston, Texas	M. D. Levy	739	16,001	13	6	1	2	2	200
Robert B. Green Memorial Hospital[1-3]	San Antonio, Texas	W. W. Bondurant	800	6,324	149	31	1	3	3	125
Santa Rosa Hospital[3]	San Antonio, Texas	M. M. Minter	3,827	20,308	247	51	1	1	1	150
Scott and White Memorial Hospitals[1-3]	Temple, Texas	V. M. Longmire	2,490	24,091	95	43	4	12	3	300
Wichita Falls Clinic Hospital	Wichita Falls, Texas	O. B. Kiel	2,032	50,455	42	5	1	1	1	...
Thomas D. Dee Memorial Hospital[1-3]	Ogden, Utah	W. P Daines	1,952	4,911	139	68	2	2	1	250
Dr. W. H. Groves Latter-Day Saints Hospital[1-3]	Salt Lake City, Utah	L. H. Moench	3,408	6,626	236	77	1	3	3	160
Holy Cross Hospital[1-3]	Salt Lake Ctiy, Utah	L. W. MacFarlane	1,054	...	72	19	1	3	1	175
Salt Lake County General Hospital[1-3]	Salt Lake City, Utah	M. M. Wintrobe	825	12,623	169	111	2	21	3	...
Bishop DeGoesbriand Hospital[1-3]	Burlington, Vt.	C. M. Terrien	1,737	3,342	99	33	1	1	2	50
Mary Fletcher Hospital[1-3-216-289]	Burlington, Vt.	E. L. Amidon	1,372	655	54	29	3	6	2	110
Alexandria Hospital[1-3]	Alexandria, Va.	B. C. Jones, Jr.	1,084	2,089	105	37	1	3	3	225
University of Virginia Hospital[1-3]	Charlottesville, Va.	W. Parsons	2,930	12,361	201	87	9	21	3	50
Chesapeake and Ohio Hospital[1-3]	Clifton Forge, Va.	J. R. Beckwith	3,108	8,822	109	33	4	5	2	150
Riverside Hospital[1-3]	Newport News, Va.	E. B. Mewborne	3,152	...	138	57	2	2	1	225
De Paul Hospital[1-2]	Norfolk, Va.	J. D. Lea	2,671	2,463	188	73	2	4	3	225
Norfolk General Hospital[1-3]	Norfolk, Va.	J. F. Waddill	2,410	12,021	215	94	4	7	3	125
Johnston-Willis Hospital[1-3]	Richmond, Va.	J. M. Hutcheson	2,542	2,000	152	72	1	1	1	225
Medical College of Virginia—Hospital Division[1-3-201]	Richmond, Va.	W. B. Porter	3,856	9,787	419	125	10	19	3	50
Jefferson Hospital[1-3]	Roanoke, Va.	G. B. Lawson	1,356	5,171	93	37	1	2	1	200
Lewis Gale Hospital	Roanoke, Va.	R. H. Jones	1,916	14,496	107	33	2	2	3	200
Doctors Hospital[3]	Seattle, Wash.	J. D. Collins	1,911	...	166	100	2	2	1	125
King County Hospital—Unit No. 1 (Harborview)[1-201]	Seattle, Wash.	R. Williams	3,892	23,585	716	437	6	11	3	110
Providence Hospital[1-3]	Seattle, Wash.	R. F. Foster	2,751	877	140	77	2	2	2	200
Swedish Hospital[1-3]	Seattle, Wash.	K. B. Skubi	2,377	...	149	74	1	2	1	100
Virginia Mason Hospital[1-3]	Seattle, Wash.	R. L. King	3,519	16,087	146	81	3	6	2	100
Deaconess Hospital[1-3]	Spokane, Wash.	O. C. Olson	1,817	...	131	60	1	1	2	175
St. Luke's Hospital[1-3]	Spokane, Wash.	W. N. Myhre	2,311	...	109	54	1	1	1	150
Northern Permanente Foundation[1-3]	Vancouver, Wash.	E. W. Saward	495	28,196	33	18	1	1	1	300
Charleston General Hospital[1]	Charleston, W. Va.	W. A. Thornhill	2,773	3,170	125	51	2	4	3	160
Memorial Hospital[1-3]	Charleston, W. Va.	P. A. Tuckwiller	812	2,450	34	20	1	3	3	240
Chesapeake and Ohio Hospital[1-3]	Huntington, W. Va.	W. E. Bray, Jr.	2,397	2,034	83	21	3	4	3	150
St. Mary's Hospital[1-3]	Huntington, W. Va.	W. E. Vest	2,503	6,681	103	34	1	1	1	175
Ohio Valley General Hospital[1-3]	Wheeling, W. Va.	D. A. MacGregor	2,913	6,330	196	73	1	3	3	325
La Crosse Lutheran Hospital[1-3]	La Crosse, Wis.	T. E. Gundersen	2,196	...	97	45	1	1	2	300
Madison General Hospital[1-3]	Madison, Wis.	A. B. Weinstein	914	...	121	39	..	2	3	150
St. Mary's Hospital[1-3]	Madison, Wis.	R. X. Farrell	1,652	...	117	39	1	1	3	125
University Hospitals[1-3]	Madison, Wis.	O. O. Meyer	4,239	9,233	168	112	8	18	3	50
St. Joseph's Hospital[1]	Marshfield, Wis.	K. H. Doege	1,566	...	109	51	1	3	3	300
Columbia Hospital[1-3-298]	Milwaukee	E. W. Mason	1,097	...	89	60	1	3	3	125
Milwaukee County Hospital[1-3]	Milwaukee	J. Shaiken	9,939	31,490	1,270	273	7	21	3	208.92
Milwaukee Hospital[1-3-296-300]	Milwaukee	S. M. Evans	2,006	1,325	120	64	1	3	3	150
Mount Sinai Hospital[1-3]	Milwaukee	R. A. Frisch	1,312	4,545	134	26	1	3	3	300
St. Joseph's Hospital[1-3]	Milwaukee	S. Rosenthal	3,216	...	254	126	1	3	3	200
Gorgas Hospital[3]	Ancon, C. Z.	G. M. Stevenson	3,319	17,205	106	65	2	6	..	282.55
Queen's Hospital[1-3]	Honolulu, T. H.	H. L. Arnold	3,042	16,231	264	126	4	7	3	135
San Juan City Hospital[1-3]	San Juan, P. R.	R. S. Diaz Rivera	1,034	23,492	137	64	2	5	..	150

9. MALIGNANT DISEASES

The following services have been approved for one year of training by the Council on Medical Education and Hospitals.
Hospitals, 13; Assistant Residencies and Residencies, 35

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL									
VETERANS ADMINISTRATION									
Veterans Admin. Hospital[1]	Hines, Ill.	T. H. Clarke	1,110	702	213	119	..	..	...
NONFEDERAL									
City of Hope Hospital	Duarte, Calif.	H. K. Sachs	615	.....	75	32	3	3	300
Presbyterian Hospital-Olmsted Memorial[1-3]	Los Angeles	C. C. Benz	585	1,076	84	30	..	1	175
Collis P. and Howard Huntington Memorial Hosp.[1-3]	Pasadena, Calif.	W. E. Delphey	567	.....	58	39	1	2	240
Michael Reese Hospital[1-3]	Chicago	E. Uhlmann	897	5,250	122	48	2	2	75
Westfield State Sanatorium[1-3]	Westfield, Mass.	F. S. Hopkins	851	7,549	78	38	3	3	490
Ellis Fischel State Cancer Hospital[1-3]	Columbia, Mo.	H. Schwarz, II	1,300	9,645	87	31	..	6	100
Barnard Free Skin and Cancer Hospital[1-3]	St. Louis	T. M. Martin A. N. Arneson	824	10,921	9	3	2	2	125
Metropolitan Hospital	New York City	.....	...	.....	..	..	..	..	...
Montefiore Hospital[1-3]	New York City	D. Laszlo	754	5,243	329	168	5	6	60
American Oncologic Hospital[1-3]	Philadelphia	J. W. Bransfield	1,151	7,823	38	12	4	4	250
Jeanes Hospital[1-3]	Philadelphia	A. E. Bothe	2,211	8,319	108	39	1	2	225
M. D. Anderson Hosp. for Cancer Research[1-3-273]	Houston, Texas	R. L. Clark, Jr. W. O. Russell	2,087	30,733	89	59	..	4	...

10. NEUROLOGICAL SURGERY

The following services have been approved by the Council and the *American Board of Neurological Surgery.*
Hospitals, 95; Assistant Residencies and Residencies, 288

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL										
UNITED STATES ARMY										
Letterman Army Hospital[1-66]	San Francisco	K. Welch	940	385	15	14	1	1	1	...
Army Medical Center[1-66-67]	Washington, D. C.	J. Martin	700	587	12	12	2	4	2	...
VETERANS ADMINISTRATION										
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	J. D. French	285	660	24	18	2	2	3	...
Veterans Admin. Hospital[1-3]	Los Angeles	E. Stern	422	482	37	30	2	2	1	...
Veterans Admin. Hospital[1]	San Francisco	O. W. Jones, Jr.	340	498	25	15	1	3	3	...
Veterans Admin. Hospital[1]	Hines, Ill.	L. T. Davis	771	502	56	26	1	2	3	...

Numerical and other references will be found on pages 373 and 374.

10. NEUROLOGICAL SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	F. A. Carmichael, Jr.	75	85	13	6	1	1	2	...
[1-3]	Louisville, Ky.	E. Grantham	213	164	17	11	1	1	1	...
[1]	Boston (Jamaica Plain), Mass.	J. H. Drew	448	454	28	23	1	2	2	...
[1-3]	Minneapolis	L. A. French	206	63	12	8	..	2	3	...
[1-3]	New York City (Bronx)	J. E. Scarff	259	428	23	12	1	5	3	...
Veterans Admin. Hospital [1-3]	Cleveland	C. W. Elkins	421	266	21	14	2	2	1	...
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	N. Gotten	724	47	23	11	1	2	1	...
Veterans Admin. Hospital [1-171]	White River Jct., Vt.	H. L. Heyl	582	1,202	2	2	1	3	2	...
Veterans Admin. Hospital [1]	Richmond, Va.	J. L. Ulmer	430	495	20	13	1	3	2	...
NONFEDERAL										
Jefferson-Hillman Hospital [1-3]	Birmingham, Ala.	J. G. Galbraith	652	810	62	19	..	1	1	...
Cedars of Lebanon Hospital [1-3]	Los Angeles	T. Putnam	141	612	7	2	1	1	1	150
Los Angeles County Hospital [1]	Los Angeles	C. W. Rand	2,742	2,050	215	26	..	4	3	190
White Memorial Hospital [1-3]	Los Angeles	P. J. Vogel	306	...	20	11	1	2	2	146.25
Franklin Hospital [1-3]	San Francisco	H. A. Brown	917	410	13	7	1	3	3	125
University of California Hospital [1-3-36]	San Francisco	E. B. Boldrey	486	1,181	21	20	..	3	3	87
Hartford Hospital [1-3]	Hartford, Conn.	W. B. Scoville	1,089	359	48	45	..	3	3	50
St. Francis H	Hartford, Conn.	R. C. Buckley	847	542	47	26	1	1	1	100
Grace-New H	nn.	W. J. German	449	696	50	30	1	3	3	50
Georgetown	C.	O. H. Fulcher	313	39	..	..	1	1	1	...
George Washington University Hospital [1-3]	Washington, D. C.	J. W. Watts	293	146	15	7	..	1	2	130
St. Vincent's Hospital [1-3]	Jacksonville, Fla.	J. G. Lyerly	300	...	13	5	1	1	1	135
Emory University Hospital [1-3]	Emory University, Ga.	E. F. Fincher	401	...	18	15	2	2	2	245
Augustana Hospital [1-3]	Chicago	W. A. Gustafson	249	...	6	5	1	1	1	150
Chicago Memorial Hospital [1-3-78]	Chicago	P. C. Bucy	350	500	22	17	..	4	2	200
Cook County Hospital [1-3]	Chicago	M. Tinsley	1,738	495	163	18	1	1	1	50
Mercy Hospital [1-3]	Chicago	H. C. Voris	281	366	10	7	1	1	2	100
Northwestern University Medical Center										
Passavant Memorial Hospital [1-3]	Chicago	L. Davis	166	...	8	..	..	1	3	50
Wesley Memorial Hospital [1-3]	Chicago		...	...	..	..	..	..	3	50
Veterans Admin. Research Hospital	Chicago		...	...	..	..	..	..		...
Evanston Hospital	Evanston, Ill.	J. Tarkington	...	...	..	..	..	..	..	...
Presbyterian Hospital [1-3]	Chicago	A. Verbrugghen	251	720	9	6	..	2	2	125
St. Luke's Hospital [1-3]	Chicago	E. Oldberg	390	...	28	20	1	2	3	50
University of Chicago Clinics [1-3]	Chicago	T. B. Rasmussen	247	1,855	30	22	1	3	2	175
University of Illinois Neuropsychiatric Institute [1-3]	Chicago	E. Oldberg	752	11,312	70	58	2	5	3	60
Indiana University Medical Center [1-103]	Indianapolis	R. F. Heimberger	529	1,197	45	35	1	3	3	150
University Hospitals [1-3]	Iowa City, Iowa	R. Meyers	...	...	..	..	1	2	3	153
University of Kansas Medical Center [1-3]	Kansas City, Kan.	W. Williamson	300	832	17	12	..	2	3	125
University of Louisville Hospitals [1-3-113]	Louisville	R. G. Spurling	167	...	42	12	..	2	3	208.33
Ochsner Foundation Hospital [1-3]	New Orleans	D. H. Echols	234	1,478	10	7	..	2	2	150
Maine General Hospital [1-3]	Portland, Maine	G. L. Maltby	417	879	34	20	..	1	1	100
Johns Hopkins Hospital [1-3]	Baltimore	A. E. Walker	674	711	34	21	..	3	3	...
University Hospital [1-3-110-123]	Baltimore	J. G. Arnold, Jr.	591	585	56	29	1	5	3	50
Boston City Hospital [1-3]	Boston	D. Munro	261	...	58	8	1	5	2	112
Lahey Clinic [1-3]	Boston	G. Horrax	1,067	3,000	44	38	6	8	2	100
Massachusetts General Hospital [1-3]	Boston	J. C. White	611	...	57	40	1	3	3	100
New England Center Hospital [1-3]	Boston	B. Selverstone	120	...	7	7	..	3	1	75
University Hospital [1-3]	Ann Arbor, Mich.	E. A. Kahn	717	1,804	97	72	2	6	3	164.16
Grace Hospital [1-3-147]	Detroit	E. S. Gurdjian	608	...	24	12	2	6	3	225
Henry Ford Hospital [1-3]	Detroit	R. S. Knighton	386	2,457	22	15	1	2	2	225
University of Minnesota Hospitals [1-3]	Minneapolis	W. T. Peyton	438	658	35	21	1	4	3	169
Mayo Foundation [1-3]	Rochester, Minn.	W. McK. Craig	4,986	4,986	82	72	8	24	3	150
Barnes Hospital [1-3]	St. Louis	H. G. Schwartz	487	655	42	25	..	3	3	50
University of Nebraska Hospital [1-3]	Omaha, Neb.	J. J. Keegan	30	...	1	1	..	1	3	175
Albany Hospital	Albany, N. Y.	E. H. Campbell	900	134	37	22	2	3	3	135
Jewish Hospital [1-3]	Brooklyn	J. Siris	100	239	15	7	1	2	2	75
Kings County Hospital [1-3]	Brooklyn	E. J. Browder	3,907	2,466	251	136	3	6	3	98
Buffalo General Hospital [1-3]	Buffalo	W. B. Hamby	446	128	32	19	..	2	3	125
Millard Fillmore Hospital [1-3]	Buffalo	W. F. Beswick	361	...	16	12	1	1	1	255
Bellevue Hospital Center										
Division II—Cornell University [1-3]	New York City	W. D. Wingebach	105	221	19	13	1	2	2	93.60
Division IV—New York University Post-Graduate Medical School [1-3-208]	New York City	T. I. Hoen	500	200	42	..	1	6	1	98
Beth Israel Hospital [1-3]	New York City	L. M. Davidoff	205	183	18	9	1	1	3	75
Mount Sinai Hospital [1-3]	New York City	L. Davidoff	337	...	45	10	1	2	3	...
New York Hospital	New York City	B. Ray	461	...	35	20	1	2	3	25
New York	York City	(See Bellevue Hospital Center, Divisions II and IV)								
Presbyteria	York City	J. L. Pool	672	485	79	73	5	8	3	208.33
St. Vincent's Hospital [1-3]	New York City	C. G. deGutierrez-Mahoney	645	1,426	59	28	1	3	2	50
Strong Memorial-Rochester Municipal Hospitals [1-3]	Rochester, N. Y.	W. P. Van Wagenen	317	127	..	..	..	15	3	41.66
State University of New York Medical Center [1-3-221]	Syracuse, N. Y.	A. Ecker	260	336	28	19	..	1	1	191.66
Duke Hospital [1-3]	Durham, N. C.	B. Woodhall	1,164	1,601	72	31	1	7	3	25
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	E. Alexander	318	847	38	25	2	3	3	41.66
Christ Hospital [1]	Cincinnati	F. H. Mayfield	285	810	9	3	1	1	1	200
Cincinnati General Hospital [1-3]	Cincinnati	J. P. Evans	260	653	69	39	..	1	3	...
Good Samaritan Hospital [1-3]	Cincinnati	F. Mayfield	163	...	16	8	..	1	1	215
Cleveland Clinic Hospital [1-3]	Cleveland	W. J. Gardner	801	4,919	47	26	2	6	3	175
White Cross Hospital [1-3]	Columbus, Ohio	H. E. LeFever	917	...	43	29	1	3	2	375
St. Vincent's Hospital [1-3]	Toledo, Ohio	M. T. Schnitker	554	...	29	19	1	1	1	225
University Hospitals [1-3-215]	Oklahoma City	H. Wilkins	228	982	24	8	..	1	2	50
University of Oregon Medical School Hospitals and Clinics [1-249]	Portland, Ore.	J. A. Raaf	85	...	..	..	1	4	3	85
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	R. A. Groff	386	470	41	17	2	3	2	...
Hospital of the University of Pennsylvania [1-3]	Philadelphia	F. Grant	451	815	38	34	2	6	3	50
Jefferson Medical College Hospital [1-3]	Philadelphia	R. J. Jaeger	489	420	62	19	..	1	2	...
Temple University Hospital [1-3]	Philadelphia	M. Scott	756	584	53	20	1	3	3	50
Mercy Hospital [1-3]	Pittsburgh	F. H. Bragdon	447	263	11	7	1	3	2	150
Western Pennsylvania Hospital [1-3]	Pittsburgh	S. N. Rowe	163	74	31	9	1	2	3	225
Robert Packer Hospital [1-3]	Sayre, Pa.	W. Baurys	564	890	16	4	1	1	1	100
Baptist Memorial Hospital [1-3]	Memphis, Tenn.	R. E. Semmes	1,770	239	63	21	1	2	2	100
Vanderbilt University Hospital [1-3-267]	Nashville, Tenn.	W. F. Meacham	589	73	38	7	1	3	3	50
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	S. R. Snodgrass	522	709	46	32	1	2	2	...
Methodist Hospital [1-3]	Houston, Texas	J. Greenwood	636	4	18	12	1	3	2	100
University of Virginia Hospital [1-3]	Charlottesville, Va.	W. G. Crutchfield	699	504	28	8	1	3	3	50
Medical College of Virginia—Hospital Division [1-3-291]	Richmond, Va.	J. M. Meredith	1,029	636	97	35	1	4	3	50
University Hospitals [1-3]	Madison, Wis.	T. C. Erickson	273	...	34	30	1	4	3	50

Numerical and other references will be found on pages 373 and 374.

11. NEUROLOGY

The following services have been approved by the Council and the American Board of Psychiatry and Neurology
Hospitals, 78; Assistant Residencies and Residencies, 279

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
		FEDERAL								
UNITED STATES ARMY										
Letterman Army Hospital [1-66]	San Francisco	A. J. Levens	390	557	..	..	..	..	3	...
Army Medical Center [1-66-67]	Washington, D. C.	J. W. Kemble	347	1,481	5	3	1	3	3	...
Fitzsimons Army Hospital [1-66]	Denver	J. W. Sumner	206	1,156	..	..	..	..	2	...
UNITED STATES NAVY										
U. S. Naval Hospital [1]	Bethesda, Md.	T. W. McDaniel	288	...	3	3	..	2	1	...
U. S. Naval Hospital [1]	Philadelphia	J. F. McMullin	240	483	6	3	..	2	1	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE										
Freedmen's Hospital [1-3]	Washington, D. C.	E. Y. Williams	236	1,541	11	2	1	2	2	...
St. Elizabeth's Hospital [1-3]	Washington, D. C.	G. D. Weickhardt	229	557	30	20	1	1	1	...
VETERANS ADMINISTRATION										
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	J. M. Nielsen	426	694	44	36	3	3	3	...
Veterans Admin. Hospital [1-3]	Los Angeles	A. Rose	379	279	9	7	1	1	2	...
Veterans Admin. Hospital [1]	San Francisco	H. W. Newman T. A. Gonda	222	268	6	5	2	4	2	...
Veterans Admin. Hospital [1-3]	Washington, D. C.	H. F. Corson	256	295	6	6	1	3	3	...
Veterans Admin. Hospital [1]	Hines, Ill.	L. J. Pollack	1,024	168	93	45	..	3	3	...
Veterans Admin. Hospital [1-3]	Topeka, Kan.	M. R. Shaver	364	...	12	5	1	2	2	...
Veterans Admin. Hospital [1-3-12]	Louisville, Ky.	E. Roseman	224	310	38	18	1	1	2	...
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain), Mass.	W. Bloomberg	673	1,181	31	6	12	12	3	...
Veterans Admin. Hospital [1-3]	Minneapolis	R. C. Gray	561	115	23	19	..	7	3	...
Veterans Admin. Hospital [1-3]	Brooklyn, N. Y.	M. E. Margulies	300	138	21	16	1	2	3	...
Veterans Admin. Hospital [1-3]	New York City (Bronx)	H. L. Flowers	646	1,616	46	24	2	6	3	...
Veterans Admin. Hospital [1-3]	Cleveland	N. P. Shumway	421	50	19	7	1	1	1	...
Veterans Admin. Hospital [1-3]	Coatesville, Pa.	C. Rupp	...	...	..	..	5	5	3	...
Veterans Admin. Hospital [1-3]	Houston, Texas	C. A. Iannucci	489	195	25	21	1	3	2	...
Veterans Admin. Hospital [1]	Richmond, Va.	B. Nagler	258	35	1	1	1	3	3	...
		NONFEDERAL								
Los Angeles County Hospital [1]	Los Angeles	J. M. Nielsen	3,314	4,525	775	214	..	3	3	190
White Memorial Hospital [1-3]	Los Angeles	E. D. Fisher	136	2,286	4	2	1	3	3	146.25
University of California Hospital [1-3]	San Francisco	R. B. Aird	399	3,891	7	6	..	3	2	87
University of Colorado Medical Center										
Colorado General Hospital [1-3-22]	Denver, Colo.	G. M. Shy	111	757	25	18	3	6	3	150
Gallinger Municipal Hospital [1-3]	Washington, D. C.	F. M. Forster W. Freeman	500	900	62	19	1	3	2	...
Georgetown University Hospital [1-3]	Washington, D. C.	F. M. Forster	103	1,062	..	..	2	6	2	...
George Washington University Hospital [1-3-64]	Washington, D. C.	W. Freeman	283	292	4	1	..	3	2	50
Cook County Hospital [1-3]	Chicago	J. A. Luhan	362	2,732	20	11	2	2	1	50
Neuropsychiatric Institute of the University of Illinois [1-3]	Chicago	E. Oldberg	752	11,312	70	58	1	2	3	60
St. Luke's Hospital [1-3]	Chicago	F. J. Gerty	674	492	5	3	1	1	2	50
University of Chicago Clinics [1-3]	Chicago	R. B. Richter	237	2,609	3	3	..	2	2	175
Indiana University Medical Center and Affiliated Hospitals										
Indianapolis General Hospital [1-102-103]	Indianapolis	A. Ross	107	978	44	9	1	1	1	150
Indiana University Medical Center [1]	Indianapolis	A. T. Ross	...	161	..	..	1	3	1	150
Methodist Hospital [1-3]	Indianapolis	E. R. Smith	501	...	..	..	1	1	1	...
University Hospitals [1-3-284]	Iowa City, Iowa	A. L. Sahs	974	553	25	16	3	5	3	75
University of Kansas Medical Center [1-3]	Kansas City, Kan.	A. T. Steegmann	162	869	8	5	..	1	2	...
Louisville General Hospital [1-3]	Louisville, Ky.	E. Roseman	...	1,464	..	..	2	5	1	150
Charity Hospital of Louisiana										
Louisiana State University Unit [1-3]	New Orleans	R. A. Matthews	109	3,179	5	2	1	3	3	40
Tulane Unit [1-3]	New Orleans	R. G. Heath	222	3,126	7	3	1	3	3	40
Baltimore City Hospitals [1-3]	Baltimore	J. W. Magladery	401	1,058	84	43	2	2	3	75
Johns Hopkins Hospital [1-3]	Baltimore	F. Ford	...	2,304	..	..	..	2	2	...
Boston City Hospital [1-3]	Boston	D. E. Denny-Brown	136	4,679	15	9	3	5	3	112
Massachusetts General Hospital [1-3]	Boston	R. D. Adams	573	5,959	31	26	1	2	3	100
New England Center Hospital [1-3]	Boston	J. F. Sullivan	...	...	..	..	..	2	1	83.33
University Hospital [1-3]	Ann Arbor, Mich.	R. N. DeJong	898	4,634	20	9	2	8	3	134.16
Henry Ford Hospital [1-3]	Detroit	L. D. Proctor	150	1,931	8	4	1	2	3	225
University of Minnesota Hospitals [1-3]	Minneapolis	A. B. Baker	578	2,199	31	24	..	4	3	150
Mayo Foundation [1-3]	Rochester, Minn.	H. W. Woltman	3,404	14,512	76	59	3	10	3	150
Barnes Hospital [1-3]	St. Louis	J. L. O'Leary	507	2,819	14	13	..	1	2	50
Albany Hospital [1-3]	Albany, N. Y.	R. W. Graves	427	624	14	9	2	3	1	135
Jewish Sanitarium and Hospital for Chronic Diseases [1-3]	Brooklyn	A. M. Rabiner	479	7,224	69	19	2	3	2	175
Kings County Hospital [1-3]	Brooklyn	E. J. Browder	1,869	3,483	557	83	2	4	3	98
Buffalo General Hospital [1-3]	Buffalo	J. H. Talbott	79	693	1	..	..	1	2	125
Bellevue Hospital Center										
Division II—Cornell University [1-3]	New York City	L. A. Hausman	422	2,217	44	20	..	2	3	98
Division III—N. Y. University College of Med. [1-3-16]	New York City	M. Bender	700	1,984	15	5	4	10	3	98
Beth Israel Hospital [1-3]	New York City	S. Brock	45	547	..	..	1	1	2	75
Goldwater Memorial Hospital [1-3]	New York City	I. S. Freiman	297	...	32	2	1	3	1	98
Lenox Hill Hospital [1-3]	New York City	A. Bell	328	1,615	17	4	1	2	2	180
Metropolitan Hospital [1-3]	New York City	I. Tarlov	79	873	9	2	1	1	1	150
Montefiore Hospital [1-3]	New York City	T. J. C. von Storch	552	2,393	61	32	3	4	3	60
Morrisania City Hospital [1-3]	New York City	N. Savitsky	...	1,032	..	..	1	2	2	95
Mount Sinai Hospital [1-3]	New York City	M. Bender	851	2,253	47	15	5	8	3	...
New York City Hospital [1-3]	New York City	L. V. Lyons	690	1,376	183	17	1	3	2	150
Presbyterian Hospital [1-3]	New York City	H. H. Merritt	3,025	15,213	66	..	10	15	3	208.33
North Carolina Memorial Hospital [1]	Chapel Hill, N. C.	T. W. Farmer	147	875	5	3	1	3	3	146
Duke Hospital [1-3]	Durham, N. C.	E. C. Kunkle	231	997	3	2	2	3	2	25
North Carolina		R. L. Masland	96	500	4	2	..	2	2	41.66
Cincinnati Gener		C. Aring	367	2,400	176	74	1	3	3	...
Cleveland Clinic Hospital [1-3]	Cleveland	L. J. Karnosh	137	14,367	5	2	1	2	2	175
University of Oregon Medical School Hospitals and Clinics [1]	Portland, Ore.	M. Margason	...	1,816	..	..	1	1	1	85
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	J. C. Yaskin	654	1,377	14	9	2	3	2	...
Hospital of University of Pennsylvania [1-3]	Philadelphia	G. Gammon	470	3,298	14	12	2	4	3	100
Jefferson Medical College Hospital [1-3]	Philadelphia	B. J. Alpers	503	3,306	14	9	2	2	3	...
Philadelphia General Hospital [1-3]	Philadelphia	G. W. Wilson	1,590	3,888	429	173	2	6	3	112.34
St. Francis Hospital [1-3]	Pittsburgh	H. L. Mitchell	951	101	19	6	1	2	2	150
Parkland Hospital [1-3]	Dallas, Texas	B. Wilson	...	281	..	..	1	1	1	50
University of Texas Medical Branch Hosps. [1-3-272]	Galveston, Texas	T. H. Harris	...	...	..	..	9	27	1	...
University Hospitals [1-3]	Madison, Wis.	W. J. Bleckmann	560	1,475	11	8	1	3	3	50

Numerical and other references will be found on pages 373 and 374.

12. OBSTETRICS AND GYNECOLOGY

The following services have been approved by the Council and the American Board of Obstetrics and Gynecology
Hospitals, 431; Assistant Residencies and Residencies, 1,901

FEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY									
Letterman Army Hospital[60]	San Francisco	E. A. Zimmerman	OBG	1,705	16,061	2	6	3	...
Fitzsimons Army Hospital[1-60]	Denver, Colo.	E. N. Akers	OBG	3,019	24,515	1	3	3	...
Army Medical Center[1-60-67]		H. L. Riva	OBG	3,641	24,478	3	8	3	...
Brooke Army Medical Center[6]		J. W. Simpson	OBG	3,703	27,911	2	6	3	...
Tripler Army Hospital[60]	Honolulu, T. H.	L. T. Dorgan	OBG	3,744	30,800	1	3	2	...
UNITED STATES NAVY									
U. S. Naval Hospital[1]	Oakland, Calif.	E. T. Knowles	OBG	4,839	35,461	..	6	3	...
U. S. Naval Hospital	San Diego, Calif.	P. Peterson	OBG	5,772	65,325	..	7	3	...
U. S. Naval Hospital[1]	Great Lakes, Ill.	M. M. Rubin	OBG	3,009	22,113	..	3	2	...
U. S. Naval Hospital[1]	Bethesda, Md.	H. H. Hill	OBG	.....	19,105	..	6	3	...
U. S. Naval Hospital[1]	Chelsea, Mass.	L. T. Dorgan	OBG	2,375	20,236	..	4	3	...
U. S. Naval Hospital[1]	St. Albans, N. Y.	S. L. Arje	OBG	2,963	23,258	..	3	3	...
U. S. Naval Hospital[1]	Philadelphia	E. L. Woolsey	OBG	2,658	21,031	..	4	3	...
U. S. Naval Hospital[1]	Portsmouth, Va.	H. Hirshland	OBG	5,535	36,212	..	4	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
Freedmen's Hospital[1-3]	Washington, D. C.	J. W. Ross	OBG	4,127	8,689	..	6	3	...
NONFEDERAL									
Carraway Methodist Hospital[1-3]	Birmingham, Ala.	T. M. Boulware	OB	2,268	10,058	1	1	1	200
Jefferson-Hillman Hospital[1-3]	Birmingham, Ala.	J. R. Garber W. N. Jones	OBG	5,638	13,602	1	7	3	...
Lloyd Noland Hospital[1-3]	Fairfield, Ala.	O. T. West	OB	2,089	20,570	1	3	2	225
Good Samaritan Hospital[1-25]	Phoenix, Ariz.	C. Van Epps	OBG	4,031	.....	1	1	1	300
Maricopa County General Hospital[1]	Phoenix, Ariz.	Z. Campbell	OBG	233	.....	..	1	1	350
University Hospital[1]	Little Rock, Ark.	W. E. Brown	OBG	2,885	14,587	5	10	3	120
Herrick Memorial Hospital[1-3]	Berkeley, Calif.	T. R. Hoffmann	OBG	3,123	3,271	1	2	1	100
San Joaquin General Hospital[1-3]	French Camp, Calif.	D. Harrington	OBG	2,220	10,331	1	3	3	235
Glendale Sanitarium and Hospital	Glendale, Calif.	J. B. Brown	OBG	2,812	586	1	1	1	161.50
Seaside Memorial Hospital[1-3]	Long Beach, Calif.	L. R. Hill	OBG	12,222	6,009	2	2	1	150
California Hospital[1-3-40]	Los Angeles	G. W. Hewitt	OB	3,129	767	2	3	2	150
Hospital of the Good Samaritan[1-3]	Los Angeles	A. M. McCausland	OBG	3,259	558	1	2	2	150
Los Angeles County Hospital[1]	Los Angeles	B. J. Hanley	OBG	17,476	18,357	..	10	3	...
Presbyterian Hospital-Olmsted Memorial[1-3]	Los Angeles	R. R. Herren H. C. Gernand	OBG	3,335	3,086	2	4	3	175
Queen of Angels Hospital[1-3]	Los Angeles	A. M. McCarthy	OBG	6,770	4,065	1	5	3	150
White Memorial Hospital[1-3]	Los Angeles	E. Larsson	OBG	2,697	18,760	1	3	3	146.25
Highland-Alameda County Hospital[1-3]	Oakland, Calif.	G. F. Calvin	OBG	3,135	7,395	1	2	3	...
Kaiser Foundation Hospital[1-3]	Oakland, Calif.	R. W. King	OBG	5,169	28,465	3	9	3	...
Collis P. and Howard Huntington Memorial Hosp.[1-3]	Pasadena, Calif.	G. Macer	OBG	2,937	6,672	1	1	1	250
Mercy Hospital[1-3]	San Diego, Calif.	D. D. Deeds	OBG	7,026	6,814	2	6	2	175
San Diego County General Hospital[1-3]	San Diego, Calif.	P. L. Martin	OBG	1,088	3,845	1	2	2	150
Children's Hospital[1-3]	San Francisco	H. A. Stephenson	OBG	3,268	3,520	2	4	2	125
Mary's Help Hospital[1-3]	San Francisco	C. L. Cooley	OBG	2,808	9,528	1	2	2	150
St. Francis Memorial Hospital[1-3]	San Francisco	C. D. Hart	OBG	2,650	515	1	2	2	300
St. Joseph's Hospital[1-3]	San Francisco	H. von Geldern	OBG	1,983	1,794	1	2	2	150
St. Mary's Hospital[1-3]	San Francisco	P. H. Arnet	OB	2,203	1,627	2	2	1	150
San Francisco Hospital									
Stanford University Service[1-30]	San Francisco	P. E. Hoffman	OBG	1,502	.....	1	2	3	75
University of California Service[1-30]	San Francisco	E. B. King	OBG	1,479	.....	2	3	3	75
Stanford University Hospital[1-3]	San Francisco	C. E. McLennan	OBG	2,873	11,985	4	10	3	50
University of California Hospital[1-3-40]	San Francisco	H. F. Traut	OBG	2,101	13,911	..	9	3	87
Santa Clara County Hospital[1]	San Jose, Calif.	J. C. Muir	OBG	1,449	7,490	2	4	2	260
St. John's Hospital	Santa Monica, Calif.	B. H. Watson	OBG	4,078	1,448	2	4	2	175
Harbor General Hospital[1-3]	Torrance, Calif.	D. G. Morton	OBG	2,545	2,870	3	6	3	190
St. Joseph's Hospital[1]	Denver	H. J. VonDetten	OBG	3,326	.....	1	1	3	150
University of Colorado Medical Center		....	.....	.....	.....	3	9	..	150
Colorado General Hospital[1-3-22]	Denver, Colo.	E. S. Taylor	OBG	1,663	8,613	..	..	3	...
Denver General Hospital[1-3-22]	Denver, Colo.	N. P. Isbell	OBG	1,631	6,066	..	..	3	...
Bridgeport Hospital[1-3]	Bridgeport, Conn.	C. Griswold	OB	2,909	.....	1	2	2	125
St. Vincent's Hospital[1-3]	Bridgeport, Conn.	J. Howard	OB	3,320	1,198	1	2	2	...
Hartford Hospital[1-3]	Hartford, Conn.	R. W. Storrs	OBG	8,727	5,926	1	3	3	50
St. Francis Hospital[1-3]	Hartford, Conn.	L. P. James	OBG	4,566	2,917	2	4	2	100
New Britain General Hospital[1-3]	New Britain, Conn.	D. A. Bristoll	OBG	2,950	.....	1	2	2	130
Grace-New Haven Community Hospital	New Haven, Conn.	....	OBG	5,876	11,377	5	10	3	50
General Service[1-3]		J. A. Fiorito	.....	.....	.....	..	..	..	...
University Service[1-3]		H. Thoms	.....	.....	.....	..	..	..	...
Hospital of St.		C. Johnson	OBG	4,303	3,065	2	5	3	100
Lawrence and M		E. H. Blank	OBG	2,526	.....	2	2	1	250
Norwalk Hospital	Norwalk, Conn.	G. V. Gorham	OB	1,859	554	1	1	1	180
Columbia Hosp. for Women and Lying-In Asylum[1-3]	Washington, D. C.	P. Haynes	OBG	7,145	16,325	3	9	3	50
Doctors Hospital[1-3]	Washington, D. C.	J. D. Wynkoop	OBG	3,915	.....	1	2	2	200
Gallinger Municipal Hospital[1-3]	Washington, D. C.	J. Parks A. Marchetti	OBG	6,980	8,331	4	7	3	...
Garfield Memorial Hospital[1-3]	Washington, D. C.	R. O'Donnell, Jr. H. P. Ramsey	OBG	3,200	3,040	4	6	3	160
Georgetown University Hospital[1-3]	Washington, D. C.	A. A. Marchetti	OBG	4,022	5,955	3	7	3	...
George Washington University Hospital[1-3]	Washington, D. C.	J. Parks	OBG	5,538	1,339	1	4	3	130
Providence Hospital[1-3]	Washington, D. C.	G. Ellis	OBG	3,423	2,176	1	3	3	200
Sibley Memorial Hospital[1-3-63]	Washington, D. C.	J. Kotz	OBG	3,292	89	2	4	2	300
Duval Medical Center[1-3]	Jacksonville, Fla.	F. Richards	OBG	1,976	8,751	1	2	2	150
St. Luke's Hospital[1]	Jacksonville, Fla.	J. C. Taylor	OB	2,281	4,607	2	2	1	225
St. Vincent's Hospital[1-3]	Jacksonville, Fla.	E. F. McCall V. Hughes	OBG	4,884	.....	1	2	1	135
Jackson Memorial Hospital[1]	Miami, Fla.	J. D. Milton	OBG	4,030	4,772	2	6	3	75
Orange Memorial Hospital[1-3]	Orlando, Fla.	D. D. Brame H. A. Day	OBG	3,460	406	1	2	2	125
Mound Park Hospital[1]	St. Petersburg, Fla.	W. B. Estes	OBG	496	.....	..	..	1	225
Tampa Municipal Hospital[3]	Tampa, Fla.	H. G. Nix	OBG	2,185	2,516	1	1	1	125
Crawford W. Long Memorial Hospital[1-3-72]	Atlanta, Ga.	R. K. Hancock	OBG	8,965	5,607	6	10	3	87.50
Georgia Baptist Hospital	Atlanta, Ga.	....	OBG	.....	.....	..	..	2	...
Grady Memorial Hospital[1-3]	Atlanta, Ga.	W. L. Caton	OBG	7,257	61,222	8	14	3	20
Piedmont Hospital[1]	Atlanta, Ga.	C. B. Upshaw	OBG	2,274	.....	1	1	1	100

Numerical and other references will be found on pages 373 and 374.

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
St. Joseph's Infirmary [1-3]	Atlanta, Ga.	M. Benson	OBG	2,143	3,498	1	2	2	160
University Hospital [75-77]	Augusta, Ga.	R. Torpin	OBG	5,565	.....	4	12	3	160
Augustana Hospital [1-3]	Chicago, Ill.	W. H. Browne	OB	1,137	1,302	2	2	1	150
Chicago Maternity Center [1-3-98]	Chicago, Ill.	B. E. Tucker H. B. Benaron	OB	4,437	13,487	24	32	1	150
Cook County Hospital [1-3]	Chicago, Ill.	A. Webster F. H. Falls	OBG	17,706	14,730	18	18	3	50
Englewood Hospital [3-97]	Chicago, Ill.	C. Krause	OB	1,726	.....	1	2	1	200
Frank Cuneo Memorial Hospital [3]	Chicago, Ill.	H. Maryan A. Daro	OBG	2,618	248	1	1	2	150
Grant Hospital [1-3]	Chicago, Ill.	V. C. Freda	OBG	2,342	1,677	3	3	3	...
Henrotin Hospital [1-3]	Chicago, Ill.	J. R. Wolff	OB	887	.....	1	1	1	200
Hospital of St. Anthony de Padua [1]	Chicago, Ill.	F. J. Fara	OB	2,111	.....	2	4	1	250
Illinois Masonic Hospital [1-3]	Chicago, Ill.	F. J. Roos	OBG	2,622	979	2	4	1	85
Lewis Memorial Maternity Hospital [1-3-96]	Chicago, Ill.	H. E. Schmitz	OBG	2,860	14,042	4	13	3	...
Loretto Hospital [1-3]	Chicago, Ill.	G. Z. Wickster	OB	1,596	.....	2	2	1	200
Lutheran Deaconess Home and Hospital [1-3]	Chicago, Ill.	G. Rosene	OB	1,444	.....	1	1	1	200
Mercy Hospital [1-3-88-93]	Chicago, Ill.	H. E. Schmitz	OBG	1,873	3,370	1	4	3	100
Michael Reese Hospital [1-3]	Chicago, Ill.	A. K. Koff	OBG	4,782	6,434	2	6	3	50
Mount Sinai Hospital [1-3-80]	Chicago, Ill.	A. J. Kobak	OBG	3,229	3,401	2	5	3	100
Passavant Memorial Hospital [1-3]	Chicago, Ill.	J. I. Brewer	OBG	1,807	.....	2	2	3	50
Presbyterian Hospital [1-3]	Chicago, Ill.	E. D. Allen	OBG	3,136	1,928	3	6	3	125
Provident Hospital [1-3]	Chicago, Ill.	P. M. Santos	OBG	.....	.....	2	5	3	...
Ravenswood Hospital [1-3]	Chicago, Ill.	S. J. Schriver	OBG	1,970	3	2	3	2	75
St. Anne's Hospital [1-3]	Chicago, Ill.	F. H. Falls	OBG	819	20,547	2	6	3	60
St. Elizabeth Hospital [3]	Chicago, Ill.	R. J. Hawkins	OB	4,417	.....	6	6	3	50
St. Joseph Hospital [1-3]	Chicago, Ill.	F. J. Lavieri	OBG	3,837	.....	3	3	1	125
St. Luke's Hospital [1-3]	Chicago, Ill.	C. Geiger	OBG	2,158	1,648	1	2	3	200
Swedish Covenant Hospital [1-3]	Chicago, Ill.	E. A. Edwards	OBG	2,560	7,319	2	6	3	50
University of Chicago Clinics [1-3]	Chicago, Ill.	G. L. Rosene	OB	2,202	.....	1	2	1	200
University of Illinois Research and Educational Hosps. [1-3]	Chicago, Ill.	W. J. Dieckmann	OBG	5,825	36,610	14	23	3	175
Wesley Memorial Hospital [1-3]	Chicago, Ill.	G. H. Gardner	OBG	3,339	4,234	2	7	3	50
Women and Children's Hospital [1-3]	Chicago, Ill.	A. Phillips	OBG	993	1,145	1	1	3	100
Evanston Hospital [1-3]	Evanston, Ill.	D. N. Danforth	OBG	2,803	1,582	1	3	3	50
St. Francis Hospital [1-3]	Evanston, Ill.	J. M. Bailey	OBG	4,645	2,051	1	3	3	150
Little Company of Mary Hospital [1-3]	Evergreen Park, Ill.	P. E. Lawler W. T. Carlisle	OBG	5,078	.....	4	4	3	175
West Suburban Hospital	Oak Park, Ill.	F. H. Falls	OBG	1,166	365	2	4	2	150
Methodist Hospital of Central Illinois [1-3]	Peoria, Ill.	W. Cooley R. W. Brandes	OB	2,519	.....	2	2	1	200
St. Francis Hospital [1-3]	Peoria, Ill.	W. A. Michael	OBG	4,614	1,159	1	2	2	...
Indianapolis General Hospital [1]	Indianapolis, Ind.	J. W. Hofmann	OBG	2,842	7,716	1	3	3	150
Indiana University Medical Center [1]	Indianapolis, Ind.	C. P. Huber	OBG	4,221	9,392	1	3	3	150
Methodist Hospital [1]	Indianapolis, Ind.	L. J. Clark	OB	7,001	.....	1	1	2	...
St. Vincent's Hospital [1]	Indianapolis, Ind.	J. H. Hawk C. Habich	OBG	3,695	622	1	3	3	250
St. Elizabeth Hospital [1-3]	Lafayette, Ind.	F. W. Peyton	OBG	2,185	26	1	3	2	175
University Hospital [1-3]	Iowa City, Iowa	J. H. Randall	OBG	2,233	1,997	3	9	3	75
University of Kansas Medical Center [1-3]	Kansas City, Kans.	L. A. Calkins	OBG	2,510	14,494	2	8	3	125
St. Francis Hospital [1-3]	Wichita, Kans.	R. A. West	OBG	4,859	.....	2	2	1	...
Wesley Hospital [1-3]	Wichita, Kans.	R. H. Maxwell	OBG	5,806	.....	3	3	1	200
St. Joseph Hospital [1-3]	Lexington, Ky.	A. B. Barrett	OBG	1,098	160	1	1	1	140
Louisville General Hospital [1-3-115]	Louisville, Ky.	W. O. Johnson	OBG	3,330	16,887	..	9	3	100
St. Joseph Infirmary [1-3-111]	Louisville, Ky.	J. B. Marshall	OBG	3,752	1,041	1	3	3	...
Charity Hospital of Louisiana									
Independent Unit [1-3]	New Orleans	A. Jacobs	OBG	4,257	21,974	3	7	3	40
Louisiana State University Unit [1-3]	New Orleans	P. Grattagnino H. J. Tatum	OBG	6,526	31,927	4	10	3	40
Tulane Unit [1-3]	New Orleans	C. G. Collins	OBG	6,592	31,937	4	10	3	40
Hotel Dieu, Sisters' Hospital [1]	New Orleans	E. W. Nelson	OBG	4,467	1,075	2	2	1	200
Ochsner Foundation Hospital [1-3]	New Orleans	C. Tyrone	OBG	321	11,781	2	4	3	150
Southern Baptist Hospital [1-117]	New Orleans	F. H. Countiss	OBG	5,420	.....	1	3	3	225
Touro Infirmary [1-110]	New Orleans	A. Caire E. P. Thomas	OBG	4,181	6,507	2	6	3	35
Confederate Memorial Medical Center [1]	Shreveport, La.	C. R. Mays	OBG	4,980	2,722	3	9	3	60
Baltimore City Hospitals [1-3]	Baltimore, Md.	L. H. Douglass	OB	3,983	762	2	6	3	75
Bon Secours Hospital [3]	Baltimore, Md.	H. B. McNally E. Novak	OBG	3,046	1,488	1	3	3	275
Franklin Square Hospital [1-3]	Baltimore, Md.	I. A. Siegel	OBG	1,213	.....	2	7	2	...
Hospital for Women [1-3]	Baltimore, Md.	J. E. Savage L. Brady	OBG	4,734	10,270	6	10	3	...
Johns Hopkins Hospital [1-3-133]	Baltimore, Md.	N. J. Eastman R. W. TeLinde	OBG	6,306	31,822	..	12	3	...
Lutheran Hospital [1-3]	Baltimore, Md.	W. N. Long, Jr. W. K. Diehl	OBG	3,588	3,098	2	6	3	...
Maryland General Hospital [1-3-128]	Baltimore, Md.	D. McC. Dixon J. D. Woodruff	OBG	2,239	787	3	6	2	100
Mercy Hospital [1-3]	Baltimore, Md.	J. J. Erwin T. K. Galvin	OBG	3,548	4,791	2	4	3	250
Provident Hospital and Free Dispensary [1-3]	Baltimore, Md.	W. B. Butler	OB	1,437	834	3	3	1	...
St. Agnes Hospital [1-3]	Baltimore, Md.	H. B. McNally E. Novak	OBG	2,243	886	2	4	2	125
St. Joseph's Hospital [1-3]	Baltimore, Md.	H. B. McNally T. K. Galvin	OBG	1,921	3,886	2	4	3	200
Sinai Hospital [1-3]	Baltimore, Md.	I. A. Siegel A. A. Sondheimer	OBG	5,024	11,552	2	8	3	85
South Baltimore General Hospital [1-3]	Baltimore, Md.	J. K. B. E. Seegar	OB	1,286	3,228	2	3	2	...
Union Memorial Hospital [1-3-120]	Baltimore, Md.	J. M. Haws	OB	2,051	4,332	2	3	2	65
University Hospital [1-3-130]	Baltimore, Md.	L. H. Douglass J. M. Hundley	OBG	4,031	19,537	4	14	3	50
Beth Israel Hospital [1-3]	Boston	H. H. Rosenfield	OBG	2,423	3,880	2	3	2	41.82
Boston City Hospital [1-3]	Boston	B. Tenney, Jr.	OBG	5,141	18,726	4	11	3	112
Boston Lying-In Hospital [1-3-141]	Boston	D. E. Reid	OB	7,622	19,731	6	12	3	50
Carney Hospital [1-3-143]	Boston	L. E. Phaneuf	OBG	871	996	1	3	3	125
Massachusetts Memorial Hospitals [1-3]	Boston	B. Tenney, Jr.	OBG	2,618	2,350	1	5	3	50
New England Hospital [1-3]	Boston	I. S. Money	OB	1,913	4,909	2	4	2	...
St. Elizabeth's Hospital [1-3]	Boston	W. McDonald	OB	4,221	2,188	1	2	2	125
St. Margaret's Hospital [1-3]	Boston	D. J. McSweeney	OBG	2,441	1,000	2	3	2	125
Booth Memorial Hospital [1-3]	Brookline, Mass.	H. Finkel	OB	621	2,159	2	2	1	200
Free Hospital for Women [1-3-133]	Brookline, Mass.	G. Van S. Smith	GYN	2,925	12,154	4	12	3	50

Numerical and other references will be found on pages 373 and 374.

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Outpatient Visits	First Year Offered[8] Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Cambridge City Hospital[1-3]	Cambridge, Mass.	F. J. Lynch	OBG	2,150	3,622	1	3	3	125
St. Anne's Hospital[3]	Fall River, Mass.	E. F. Shay	OBG	1,600	320	1	1	1	150
Quincy City Hospital[1-3]	Quincy, Mass.	E. L. Carey	OBG	2,906	800	1	2	1	150
St. Joseph's Mercy Hospital[1-3]	Ann Arbor, Mich.	H. H. Cummings	OBG	2,100	.....	2	4	3	200
University Hospital[1-3]	Ann Arbor, Mich.	N. F. Miller	OBG	3,141	14,545	3	12	3	134.16
City of Detroit Receiving Hospital[1-3-140]	Detroit	C. S. Stevenson	GYN	898	6,739	1	5	3	254
Detroit Memorial Hospital[1-3]	Detroit	R. B. Edmondson	OBG	2,681	363	1	2	3	225
Evangelical Deaconess Hospital[1-3]	Detroit	L. Braun	OBG	2,485	300	1	3	1	200
Florence Crittenton Hospital[1]	Detroit	H. A. Pearse	OBG	3,991	4,160	2	6	3	225
Grace Hospital[1-3]	Detroit	O. W. Pickard	OBG	9,485	.....	3	14	3	225
Harper Hospital[1-3]	Detroit	A. E. Catherwood	OBG	5,626	3,539	2	6	3	225
Henry Ford Hospital[1-3]	Detroit	C. P. Hodgkinson	OBG	3,927	31,416	2	6	3	225
Herman Kiefer Hospital[1-3]	Detroit	C. S. Stevenson	OB	5,372	16,444	5	5	2	254
Mount Carmel Mercy Hospital[1]	Detroit	C. N. Swanson	OBG	8,537	251	3	7	3	225
Providence Hospital[1-3]	Detroit	H. Henderson	OBG	5,583	2,181	1	3	3	250
St. Joseph Mercy Hospital[1]	Detroit	R. Kennedy	OBG	3,391	1,011	1	3	2	225
Woman's Hospital[1-3]	Detroit	R. B. Kennedy H. M. Nelson	OBG	6,644	1,901	2	7	3	250
Hurley Hospital[1]	Flint, Mich.	I. H. Gutow	OBG	3,787	.....	1	3	2	300
Blodgett Memoria		D. M. Schuitema	OBG	2,488	765	1	2	2	200
Butterworth Hosp		L. C. Bosch	OBG	4,751	1,106	2	6	3	225
St. Mary's Hospital[1]	Grand Rapids, Mich.	J. H. Beaton	OBG	4,161	162	2	2	1	200
Pontiac General Hospital[1-3-155]	Pontiac, Mich.	H. A. Furlong	OBG	3,930	.....	1	3	3	225
St. Joseph Mercy Hospital[1-3]	Pontiac, Mich.	R. Adair	OB	4,006	.....	1	3	1	300
Saginaw General Hospital[1-3]	Saginaw, Mich.	C. E. Toshach	OBG	2,500	1,127	1	3	3	320
Maternity Hospital[1]	Minneapolis	A. Arnold	OB	1,964	3,898	3	3	1	210
Minneapolis General Hospital[1-3]	Minneapolis	W. P. Sadler	OBG	1,117	6,253	1	3	3	169
Northwestern Hospital[1-3]	Minneapolis	J. Haugen	OBG	3,462	.....	1	2	2	200
St. Barnabas Hospital[1-3]	Minneapolis	M. T. Mitchell	OBG	3,062	.....	2	2	2	175
St. Mary's Hospital[1-3]	Minneapolis	L. A. Lang	OBG	5,160	.....	2	3	2	200
University of Minnesota Hospitals[1-3]	Minneapolis	J. L. McKelvey	OBG	1,495	4,509	2	7	3	150
Mayo Foundation[1-3]	Rochester, Minn.	L. M. Randall	OBG	4,375	14,860	5	15	3	150
Ancker Hospital[1-3]	St. Paul, Minn.	E. M. Kasper	OBG	1,028	4,674	1	2	3	150
Charles T. Miller Hospital[1-3-156]	St. Paul, Minn.	R. S. Countryman A. F. Hayes	OBG	2,906	2,872	1	2	3	150
St. Louis County Hospital[1-3]	Clayton, Mo.	L. Dorsett	OBG	925	6,896	1	2	3	225
Kansas City General Hospital No. 1	Kansas City, Mo.	J. G. Webster	OBG	1,728	3,434	1	4	3	75
Kansas City General Hospital No. 2[1-3]	Kansas City, Mo.	H. L. Gainey	OBG	1,308	4,230	2	6	3	75
St. Joseph Hospital[3]	Kansas City, Mo.	A. B. Sinclair	OBG	4,071	360	1	4	2	200
St. Luke's Hospital[1-3]	Kansas City, Mo.	J. M. Singleton	OBG	3,528	.....	2	4	3	175
Barnes Hospital[1-3]	St. Louis	W. Allen	OBG	6,130	23,146	4	8	3	50
De Paul Hospital[1-3]	St. Louis	R. V. Boedeker	OBG	3,385	376	1	2	2	185
Homer G. Phillips Hospital[1-3-167]	St. Louis	K. C. Morrin	OBG	5,524	10,690	3	9	3	215
Jewish Hospital[1-3-165]	St. Louis	H. Wasserman	OBG	2,661	1,750	..	3	2	100
Missouri Baptist Hospital[1-3]	St. Louis	J. B. O'Neill	OBG	2,204	.....	1	2	1	...
St. John's Hospital[1-3]	St. Louis	M. W. Weis	OB	2,741	1,263	1	1	1	150
St. Louis City Hospital[1-3]	St. Louis	R. J. Crossen H. R. Smith	OBG	2,603	7,516	4	10	3	137.75
St. Luke's Hospital[1-3]	St. Louis	G. J. L. Wuff, Jr.	OBG	1,769	1,134	..	..	3	...
St. Mary's Group of Hospitals[1-3]	St. Louis	J. A. Hardy, Jr.	OBG	7,616	12,311	5	11	3	65
Lincoln General Hospital[1-3]	Lincoln, Neb.	H. E. Harvey	OBG	1,510	.....	1	1	1	200
St. Elizabeth Hospital[1-3]	Lincoln, Neb.	S. T. Thiersein	OBG	1,692	.....	1	1	1	250
Bishop Clarkson Memorial Hospital	Omaha	C. F. Moon	OBG	1,291	.....	..	..	1	175
Creighton Memorial—St. Joseph's Hospital[1]	Omaha	M. E. Grier	OBG	3,998	4,887	2	4	3	150
University of Nebraska Hospital[1-3-170]	Omaha	L. S. McGoogan	OBG	1,143	4,499	2	5	3	175
Immanuel Hospital	Omaha	....	OBG	.....	.....	..	..	1	...
Cooper Hospital[1-3]	Camden, N. J.	G. B. German H. P. Shipps	OBG	4,858	11,958	1	4	3	200
Medical Center—Jersey City Hospital[1-3-174]	Jersey City, N. J.	E. N. Bookrajian	GYN	882	4,672	2	5	3	66.75
Margaret Hague Maternity Hospital[1-3-173]	Jersey City, N. J.	S. A. Cosgrove	OB	10,678	19,467	5	20	3	66.66
Monmouth Memorial Hospital[1-3]	Long Branch, N. J.	R. A. MacKenzie	OB	1,668	1,087	2	2	2	200
Newark Beth Israel Hospital[1-3]	Newark, N. J.	O. Glass	OBG	5,117	3,378	1	2	2	75
St. Michael's Hospital[1-3]	Newark, N. J.	G. W. Hayes	OB	2,920	1,006	..	2	2	...
Paterson General Hospital[1-3]	Paterson, N. J.	L. E. Thron	OB	2,997	1,516	1	1	1	100
Holy Name Hospital[3]	Teaneck, N. J.	J. Prather	OBG	2,619	437	1	1	2	125
Albany Hospital[1-3]	Albany, N. Y.	T. O. Gamble A. J. Wallingford	OBG	4,418	2,398	2	3	2	135
Anthony N. Brady Maternity Home[1-3]	Albany, N. Y.	J. G. Hayes	OB	3,184	2,035	..	3	2	200
Beth-El Hospital[1-3]	Brooklyn, N. Y.	W. Levine	OBG	4,536	6,215	6	12	3	100
Brooklyn Hospital[1-3]	Brooklyn, N. Y.	J. T. Wallace	OBG	2,873	5,301	1	4	3	100
Brooklyn Women's Hospital[1-3]	Brooklyn, N. Y.	P. Topkins	OBG	2,126	2,426	2	2	1	125
Coney Island Hospital[1-3]	Brooklyn, N. Y.	M. G. Derbrucke	OBG	1,379	3,848	1	2	2	93.30
Cumberland Hospital[1-3]	Brooklyn, N. Y.	S. Lubin	OBG	2,622	12,584	4	7	3	99
Greenpoint Hospital[1-3]	Brooklyn, N. Y.	W. C. Meagher	OBG	2,387	14,636	2	6	2	...
Jewish Hospital[1-3]	Brooklyn, N. Y.	C. Birnberg S. Kraushar	OBG	7,431	8,705	2	8	3	75
Kings County Hospital	Brooklyn, N. Y.								
County Service[1-3]	Brooklyn, N. Y.								
University Service[1-3]	Brooklyn, N. Y.								
Long Island College Hospital[1-3]	Brooklyn, N. Y.	L. M. Hellman	OBG	10,014	29,329	8	20	3	98
Maimonides Hospital[1-3]	Brooklyn, N. Y.	B. Rabbiner	OBG	4,218	4,105	2	6	3	35
Methodist Hospital[1-3]	Brooklyn, N. Y.	S. C. Hall H. S. Acken	OBG	3,938	10,477	2	8	3	...
Norwegian Lutheran Deaconesses' Home and Hosp.[1-3]	Brooklyn, N. Y.	B. A. Harris	OBG	2,751	4,838	..	6	3	100
St. Catherine's Hospital[1-3]	Brooklyn, N. Y.	C. A. Gordon	OBG	2,215	2,320	2	4	2	125
St. John's Episcopal Hospital[1-3]	Brooklyn, N. Y.	C. W. Mueller	OBG	1,250	5,907	1	3	3	115
St. Mary's Hospital[1-3]	Brooklyn, N. Y.	C. H. Loughran	OBG	2,481	5,849	1	3	3	175
Unity Hospital[1-3]	Brooklyn, N. Y.	S. L. Siegler	OBG	3,309	1,670	3	3	2	100
Wyckoff Heights Hospital[1-3]	Brooklyn, N. Y.	F. W. Benschine	OBG	2,066	1,532	1	3	1	100
Buffalo General Hospital[1-3-189]	Buffalo, N. Y.	C. L. Randall	OBG	3,150	3,978	..	6	3	125
Children's Hospital[1-3]	Buffalo, N. Y.	C. L. Randall	OB	2,790	.....	..	1	2	75
Deaconess Hospital[1-3]	Buffalo, N. Y.	W. H. Burwig	OBG	3,165	76	2	2	1	175
Edward J. Meyer Memorial Hospital[1-186]	Buffalo, N. Y.	E. G. Winkler	OBG	1,969	8,923	2	6	3	179
Millard Fillmore Hospital[1-3]	Buffalo, N. Y.	L. F. McLean	OBG	6,565	654	2	6	3	255
Sisters of Charity Hospital[1-3-192-193]	Buffalo, N. Y.	E. G. Winkler	OBG	5,516	3,954	2	8	3	210
Flushing Hospital and Dispensary[1-3-200]	Flushing, N. Y.	F. Carpenter	OBG	5,274	4,116	2	6	3	125
Meadowbrook Hospital[1-3]	Hempstead, N. Y.	E. F. Miller	OBG	1,267	2,451	1	1	2	225
Mary Immaculate Hospital[1-3]	Jamaica, N. Y.	J. P. McManus	OB	2,553	2,998	1	1	1	110
Queens General Hospital[1-3]	Jamaica, N. Y.	F. Carpenter	OBG	2,725	9,068	1	3	3	98.33

Numerical and other references will be found on pages 373 and 374.

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Charles S. Wilson Memorial Hospital[1-3]	Johnson City, N. Y.	G. Cheatham	OBG	2,011	.....	1	2	2	175
Nassau Hospital[1-3]	Mineola, N. Y.	A. F. Wright	OB	3,770	.....	2	2	1	...
Mt. Vernon Hospital[3]	Mt. Vernon, N. Y.	N. M. Weinrod	OB	1,691	921	1	1	1	175
Bellevue Hospital Center Div. III—N. Y. University College of Medicine[1-3]	New York City	W. Studdiford	OBG	4,978	29,750	3	9	3	98
Beth David Hospital[1-3]	New York City	M. F. Goldberger	OBG	1,691	1,829	1	2	2	125
Beth Israel Hospital[1-3]	New York City	H. C. Falk	OBG	3,839	5,019	2	7	2	75
Bronx Hospital[1-3]	New York City	A. C. Posner A. J. Fleischer	OBG	3,893	6,898	2	6	1	50
Flower and Fifth Avenue Hospitals[1-3]	New York City	C. E. Folsome	OBG	3,911	2,752	1	3	3	...
Fordham Hospital[1-3]	New York City	M. L. Brandt	OBG	1,926	8,617	2	4	2	93.33
Francis Delafield Hospital[1-3]	New York City	H. C. Taylor	GYN	187	483	..	4	1	98
French Hospital[1-3]	New York City	C. E. Heaton H. C. Falk	OBG	1,917	4,195	2	4	2	83.33
Harlem Hospital[1-3]	New York City	A. C. Posner M. L. Bobrow	OBG	7,219	.....	2	6	3	93.32
Hospital for Joint Diseases[1-3]	New York City	E. L. Hecht	GYN	307	2,685	1	1	1	70
Jewish Memorial Hospital[1-3]	New York City	M. Brandt	OBG	2,526	2,413	1	1	1	150
Lenox Hill Hospital[1-3]	New York City	J. Kilroe L. O'Donnell	OBG	3,407	7,034	1	3	3	180
Lincoln Hospital[1-3]	New York City	*W. H. Godsick*	*OBG*	*4,147*	*21,520*	*3*	*9*	*3*	*65*
Metropolitan Hospital[1-3]	New York City	C. E. Folsome	OBG	4,120	19,216	4	6	3	98
Misericordia Hospital	New York City	J. A. Kelly	OB	1,330	.....	..	..	2	...
Morrisania City Hospital[1-3]	New York City	M. Goodfriend	OBG	3,226	15,331	1	4	2	98
Mt. Sinai Hospital[1-3]	New York City	A. Guttmacher	OBG	1,599	4,585	8	14	3	50
New York City Hospital[1-3]	New York City	E. F. Smith J. V. Ricci	OBG	2,728	14,230	2	10	3	150
New York Hospital[1-3]	New York City	R. G. Douglas	OBG	7,188	38,842	6	20	3	12.50
New York Infirmary[1-3]	New York City	C. Mendez	OB	1,118	2,132	1	2	2	100
New York Polyclinic Medical School and Hospital[1-3]	New York City	E. H. Dennen D. N. Barrows	OBG	2,633	4,984	2	4	2	...
New York University-Bellevue Medical Center		(See also Bellevue Hospital Center, Division III)							
University Hospital[1-3]	New York City	L. L. Mackenzie	GYN	781	8,028	2	4	2	80
Presbyterian Hospital (Sloan Hospital for Women)[1-3]	New York City	H. C. Taylor, Jr.	OBG	6,994	40,704	6	21	3	208.33
Roosevelt Hospital[1-3]	New York City	T. C. Peightal	GYN	935	3,513	1	3	2	170
St. Clare's Hospital[1]	New York City	M. J. Jordan	OBG	2,109	4,336	2	6	3	50
St. Francis Hospital[1]	New York City	J. S. Labate	OBG	2,442	6,086	1	3	3	125
St. Vincent's Hospital[1-3]	New York City	T. Lavell	OBG	3,435	8,994	1	4	3	50
Sydenham Hospital[1-3]	New York City	P. Murray	OBG	2,526	4,616	1	3	3	98
Woman's Hospital[1-3]	New York City	A. H. Aldridge	OBG	6,513	29,291	..	..	3	25
United Hospital[1-3]	Port Chester, N. Y.	J. Hawthorne	OB	1,213	682	1	1	1	200
Genesee Hospital[1-3]	Rochester, N. Y.	S. R. Snow, Jr.	OBG	2,602	1,874	1	4	3	75
Highland Hospital[1-3]	Rochester, N. Y.	F. Fumia	OB	2,078	503	1	1	2	100
Rochester General Hospital[1-3]	Rochester, N. Y.	E. R. Duggan	OB	2,817	1,766	1	3	3	100
Strong Memorial-Rochester Municipal Hospitals[1-3]	Rochester, N. Y.	C. J. Lund	OBG	3,769	4,736	3	7	3	41.66
Ellis Hospital[1]	Schenectady, N. Y.	W. Mallin J. Cornell	OBG	3,054	639	3	3	2	...
General Hospital[1]	Syracuse, N. Y.	R. Pieri	OBG	2,453	1,892	1	3	2	191.66
St. Joseph's Hospital[1]	Syracuse, N. Y.	L. Fournier	OBG	3,103	2,253	2	2	1	190
State University of New York Medical Center[218]	Syracuse, N. Y.	.....	.....	.....	.....	..	..	..	...
North Carolina Memorial Hospital	Chapel Hill, N. C.	R. A. Ross	OBG	491	4,618	2	5	3	146
Charlotte Memorial Hospital	Charlotte, N. C.	J. A. Crowell	OBG	2,836	1,915	1	3	2	150
Duke Hospital[1-3]	Durham, N. C.	B. Carter	OBG	3,167	17,215	4	10	3	41.33
Watts Hospital[1]	Durham, N. C.	E. B. Easley	OB	1,561	962	..	1	1	150
Rex Hospital[1-3]	Raleigh, N. C.	R. J. Ruark	OBG	3,184	1,963	..	2	2	200
St. Agnes Hospital[1-3]	Raleigh, N. C.	R. J. Ruark	OBG	907	1,284	1	3	1	200
City Memorial Hospital[1-3]	Winston-Salem, N. C.	R. L. Wall, Jr.	OBG	3,253	2,203	..	1	1	200
North Carolina Baptist Hospital[1-3]	Winston-Salem, N. C.	F. R. Lock	OBG	2,579	4,454	2	4	3	41.66
St. Luke's Hospital	Fargo, N. D.	G. W. Hunter	OBG	1,867	.....	1	1	1	200
City Hospital[1-3]	Akron, Ohio	A. Weil	OBG	6,701	661	3	6	3	250
Peoples Hospital[1-3-15]	Akron, Ohio	L. DaSef	OBG	4,573	1,030	3	5	3	250
St. Thomas Hospital[1-3]	Akron, Ohio	E. F. Hellwig	OBG	2,921	1,366	2	8	2	250
Aultman Hospital[1-3]	Canton, Ohio	H. I. Keck	OBG	4,376	31	4	5	2	225
Mercy Hospital[1-3]	Canton, Ohio	R. K. Ramsayer	OBG	3,181	91	1	3	2	200
Bethesda Hospital[1-3]	Cincinnati	R. Bryant	OBG	4,242	1,720	2	5	3	200
Cincinnati General Hospital	Cincinnati	S. T. Garber L. Bossert	OB	4,569	11,382	2	8	3	...
City Hospital[1-3]	Cleveland	A. E. Bennett	OBG	2,879	16,219	..	..	..	90
Fairview Park Hospital[1-3]	Cleveland	E. D. Saunders	OB	2,524	293	2	2	1	120
Lutheran Hospital[1-3]	Cleveland	R. S. Dial	OB	1,966	.....	1	2	2	162.50
Mount Sinai Hospital[1-3]	Cleveland	L. H. Biskind	OBG	4,643	6,673	2	8	3	...
St. Ann's Maternity Hospital[1-3]	Cleveland	M. B. Laven	OB	2,554	917	3	3	1	300
St. John's Hospital[1-3]	Cleveland	J. V. Heimann J. E. Morgan	OBG	3,130	40	2	5	2	...
St. Luke's Hospital[1-3]	Cleveland	G. B. Hurd	OBG	4,890	4,718	1	4	3	120
University Hospitals[1-3]	Cleveland	R. B. Scott	OBG	7,180	24,101	6	21	3	25
Mount Carmel Hospital[1]	Columbus, Ohio	R. F. Daly	OB	3,455	892	1	3	2	250
St. Ann's Maternity Hospital[3]	Columbus, Ohio	Z. J. R. Hollenbeck	OBG	3,564	678	1	3	2	200
University Hospitals University Hospital[1-3]	Columbus, Ohio	A. C. Barnes	OBG	4,450	41,819	3	10	3	150
White Cross Hospital[1-3]	Columbus, Ohio	W. M. Silbernagel	OBG	3,506	.....	1	2	2	375
Good Samaritan Hospital[1-3]	Dayton, Ohio	H. E. McKnight	OBG	6,334	759	2	4	2	250
Miami Valley Hospital[1-3]	Dayton, Ohio	E. E. Pinnell	OB	4,857	1,117	..	1	1	210
Huron Road Hospital[1-3]	East Cleveland, Ohio	J. J. Woodworth	OBG	4,543	186	2	5	3	210
Marymount Hospital[1-3]	Garfield Hgts., Ohio	A. H. Dindia	OBG	1,841	.....	2	2	1	300
Lakewood Hospital[1-3]	Lakewood, Ohio	B. Wylie	OBG	2,659	29	2	2	2	150
St. Rita's Hospital[1-3]	Lima, Ohio	V. A. Noble	OB	2,075	31	1	2	2	175
Maumee Valley Hospital[1-3]	Toledo, Ohio	S. D. Zuker	OB	482	271	1	1	1	210
Mercy Hospital[1-3]	Toledo, Ohio	R. C. King	OBG	3,883	1,285	1	3	2	200
St. Vincent's Hospital[1-3]	Toledo, Ohio	M. W. Diethelm	OBG	3,832	.....	2	4	3	225
Toledo Hospital[1-3]	Toledo, Ohio	O. E. Todd	OBG	3,987	208	2	4	3	200
St. Elizabeth's Hospital[1-3]	Youngstown, Ohio	J. J. McDonough	OBG	4,752	507	1	3	2	200
St. Anthony Hospital	Oklahoma City, Okla.	G. Rogers	OBG	5,197	4,206	1	3	3	150
University Hospitals[1-3]	Oklahoma City, Okla.	J. B. Eskridge J. W. Kelso	OBG	2,407	11,260	1	3	3	50
Wesley Hospital[1-216]	Oklahoma City, Okla.	J. W. Records	OBG	3,192	6,123	1	2	2	150
St. John's Hospital[1]	Tulsa, Okla.	W. C. Lindstrom	OBG	3,406	.....	1	1	2	150
Emanuel Hospital[1-3]	Portland, Ore.	R. Greene	OBG	7,738	.....	2	6	3	100
St. Vincent's Hospital[1]	Portland, Ore.	M. S. Sichel	OB	2,573	128	1	1	1	165

Numerical and other references will be found on pages 373 and 374.

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
University of Oregon Medical School Hospitals and Clinics[1]	Portland, Ore.	H. C. Stearns	OBG	1,417	7,172	1	3	3	85
Abington Memorial Hospital[1-3]	Abington, Pa.	R. D. Porter C. M. Turman	OBG	3,274	3,076	1	3	3	100
Allentown Hospital[1-3]	Allentown, Pa.	F. C. Shaeffer	OBG	3,927	269	2	2	2	225
St. Luke's Hospital[1-3]	Bethlehem, Pa.	T. E. Schadt	OBG	2,954	376	3	3	2	275
Bryn Mawr Hospital[1-3]	Bryn Mawr, Pa.	J. L. Richards	OBG	3,034	1,611	1	1	1	100
George F. Geisinger Memorial Hospital and Clinic[1-3]	Danville, Pa.	R. E. Nicodemus	OB	1,502	10,631	2	2	1	100
Fitzgerald Mercy Hospital[1-3]	Darby, Pa.	J. V. Missett	OBG	3,691	2,059	2	2	1	200
Harrisburg Hospital[1-3]	Harrisburg, Pa.	W. P. Dailey	OBG	3,717	3,927	1	3	2	200
Albert Einstein Medical Center									
Northern Division[1-3]	Philadelphia	G. Weinstein	GYN	2,084	623	1	2	2	100
Southern Division[1-3]	Philadelphia	A. First C. Wachs	OBG	2,582	4,056	2	2	2	75
Episcopal Hospital[1]	Philadelphia	J. H. Dugger	OBG	2,715	4,753	1	3	3	100
Frankfort Hospital[1-3]	Philadelphia	G. C. Hanna, Jr.	OBG	2,922	1,735	1	2	2	250
Germantown Dispensary and Hospital[1-3]	Philadelphia	Z. B. Newton	OBG	2,619	3,455	1	3	2	150
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	R. A. Kimbrough	GYN	789	1,994	1	2	3	150
Hahnemann Medical College and Hospital[1-3]	Philadelphia	N. F. Paxson B. C. McFadyen	OBG	4,042	10,006	3	8	3	50
Hospital of the University of Pennsylvania[1-3]	Philadelphia	C. Bachman F. L. Payne	OBG	5,112	12,425	0	12	3	...
Hospital of the Woman's Medical College of Pennsylvania[1-3]	Philadelphia	A. G. Taylor M. DeW. Pettit	OBG	2,346	6,382	2	4	3	60
Jefferson Medical College Hospital[1-3]	Philadelphia	L. C. Scheffey T. L. Montgomery	OBG	4,999	15,737	..	..	3	25
Lankenau Hospital[1-3]	Philadelphia	R. B. Wilson	OB	1,116	3,164	..	1	2	100
Mercy-Douglass Hospital	Philadelphia	H. O. Dickens	OBG	955	.....	2	2	2	150
Methodist Episcopal Hospital[1-3]	Philadelphia	R. W. Mohler	OBG	1,570	2,188	1	2	2	200
Pennsylvania Hospital[1-3]	Philadelphia	R. A. Kimbrough Jr.	OBG	4,997	14,969	..	7	3	20
Philadelphia General Hospital[1-3]	Philadelphia	T. L. Montgomery	OBG	6,535	19,167	2	5	3	112.34
Temple University Hospital[1-3]	Philadelphia	J. R. Willson	OBG	4,575	15,108	4	12	3	50
Woman's Hospital[1-3]	Philadelphia	A. G. Taylor H. Angelucci	OBG	2,521	5,924	2	4	3	175
Mercy Hospital[1-3]	Pittsburgh	R. A. Gillis R. J. Frodey	OBG	3,391	863	1	2	2	150
Montefiore Hospital[1-3]	Pittsburgh	H. M. Cohen	OB	1,745	2,122	1	1	1	100
Pittsburgh Hospital[1-3]	Pittsburgh	E. A. Conti	OBG	2,499	718	1	1	2	200
Pittsburgh Medical Center[1-3-261]	Pittsburgh	H. A. Power	OBG	9,235	7,810	4	12	3	50
St. Francis Hospital[1-3]	Pittsburgh	J. H. Carroll J. A. Hepp	OBG	2,789	1,236	1	3	3	150
St. Margaret Memorial Hospital[1]	Pittsburgh	R. E. Tafel	OBG	1,284	657	1	1	2	175
South Side Hospital[1-3]	Pittsburgh	J. A. New J. Hodgkiss	OBG	2,274	754	1	2	1	250
Wilkes-Barre General Hospital[1]	Wilkes-Barre, Pa.	J. J. Kocyan	OB	1,924	681	1	1	1	225
Providence Lying-In Hospital[3]	Providence, R. I.	A. L. Potter	OB	8,491	10,951	2	2	1	110
Rhode Island Hospital[1-3]	Providence, R. I.	G. W. Waterman	GYN	1,426	2,572	1	2	2	60
Roper Hospital[1-3]	Charleston, S. C.	L. A. Wilson	OBG	3,209	9,086	2	4	3	83
Columbia Hospital[1-3]	Columbia, S. C.	F. B. C. Geibel	OBG	3,226	.....	1	2	2	150
Greenville General Hospital[1-3]	Greenville, S. C.	H. M. Allison R. M. Dacus	OBG	3,894	2,759	1	2	3	125
Baroness Erlanger Hospital[1-3]	Chattanooga, Tenn.	H. Schwartz	OB	4,597	4,388	2	2	1	125
Memorial Hospital	Chattanooga, Tenn.	C. L. Suggs	OBG	1,679	38	1	1	1	250
Knoxville General Hospital[1]	Knoxville, Tenn.	H. H. Jenkins	OBG	1,468	1,729	1	1	1	125
Baptist Memorial Hospital[1-3]	Memphis, Tenn.	F. Taylor	OBG	5,479	740	1	3	2	100
City of Memphis Hospitals[1-3]	Memphis, Tenn.	F. E. Whitacre	OBG	8,343	.....	4	10	3	35
Methodist Hospital	Memphis, Tenn.	C. Bringle	OB	4,038	.....	1	1	2	100
St. Joseph Hospital[1-3-204]	Memphis, Tenn.	J. J. Redmon	OBG	3,704	991	1	3	3	...
George W. Hubbard Hospital of Mehary Medical College[1-3]	Nashville, Tenn.	W. F. B. James	OB	1,208	4,124	3	4	2	150
Mid State Baptist Hospital[1-3]	Nashville, Tenn.	S. Bayer	OBG	823	2,184	1	3	2	150
Nashville General Hospital[1-3]	Nashville, Tenn.	J. C. Burch	OBG	2,248	8,635	2	5	2	50
St. Thomas Hospital[1-3]	Nashville, Tenn.	M. S. Lewis	OB	2,138	.....	1	3	2	200
Vanderbilt University Hospital[1-3-267]	Nashville, Tenn.	J. C. Burch	OBG	2,767	8,695	4	8	3	50
Brackenridge Hospital	Austin, Texas	E. K. Blewett	OBG	2,185	3,688	..	1	1	250
Baylor University Hospital[1-3]	Dallas, Texas	W. K. Strother	OBG	10,537	4,359	3	7	3	75
Methodist Hospital[1-3-271]	Dallas, Texas	P. D. Newell	OBG	4,932	1,790	2	4	3	125
Parkland Hospital[1-3]	Dallas, Texas	W. F. Mengert	OBG	3,572	8,363	4	8	3	50
St. Paul's Hospital[1-3]	Dallas, Texas	W. F. Guerriero	OBG	5,056	6,271	2	5	3	100
Hotel Dieu Sister's Hospital[1-3]	El Paso, Texas	E. G. Bernell	OBG	1,617	9,339	2	2	2	150
Harris Hospital[1-3]	Fort Worth, Texas	R. L. Grogan	OBG	6,[illegible]93	1,619	1	3	1	125
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	W. R. Cooke	OBG	1,976	12,934	3	9	3	...
Hermann Hospital[1-3]	Houston, Texas	T. G. Gready A. M. Faris	OBG	8,047	12,526	3	7	3	100
Jefferson Davis Hospital[1]	Houston, Texas	H. W. Johnson	OBG	5,031	32,980	4	8	3	50
M. D. Anderson Hospital[1-3-273-277]	Houston, Texas	J. A. Wall	GYN	461	4,354	..	2	1	150
Methodist Hospital[1-3]	Houston, Texas	D. Wachsman J. Wall	OBG	2,356	4,006	2	3	2	100
St. Joseph's Infirmary[3-270]	Houston, Texas	R. A. Johnston	OBG	8,013	3,657	2	5	3	150
Baptist Memorial Hospital[1-3]	San Antonio, Texas	H. C. Sweet	OBG	4,735	2,673	1	3	3	150
Robert B. Green Memorial Hospital[1-3]	San Antonio, Texas	G. G. Passmore	OBG	2,100	7,152	1	3	3	125
Thomas D. Dee Memorial Hospital[1-3-282]	Ogden, Utah	V. L. Ward	OBG	3,058	500	2	6	2	250
Dr. W. H. Groves Latter-Day Saints Hospital[1-3]	Salt Lake City	M. S. Sanders	OBG	7,338	231	2	4	2	160
Holy Cross Hospital[1-3-283]	Salt Lake City	L. Smith	OBG	3,266	.....	2	4	3	175
Salt Lake County General Hospital[1-3]	Salt Lake City	E. G. Holstrom	OBG	1,038	2,504	..	3	2	...
Bishop DeGoesbriand Hospital[1-3-287]	Burlington, Vt.	W. J. Slavin	OBG	1,011	111	1	1	1	50
Mary Fletcher Hospital[1-3-210-285]	Burlington, Vt.	J. V. S. Maeck	OBG	1,516	1,448	..	2	2	50
Alexandria Hospital[1-3]	Alexandria, Va.	H. Picot	OB	2,852	2,109	2	2	1	200
Arlington Hospital[1-3]	Arlington, Va.	J. B. Jacobs	OB	2,021	123	1	1	1	150
University of Virginia Hospital[1-3]	Charlottesville, Va.	W. N. Thornton	OBG	3,177	9,774	2	8	3	50
Riverside Hospital[1-3]	Newport News, Va.	W. R. Payne	OBG	2,843	.....	2	2	1	225
De Paul Hospital[1-3]	Norfolk, Va.	J. R. Kight	OBG	3,327	1,576	2	4	3	225
Norfolk General Hospital[1-3]	Norfolk, Va.	R. B. Nicholls	OBG	2,194	876	2	3	2	125
Johnston-Willis Hospital[1-3]	Richmond, Va.	E. Rucker	OB	1,714	4,200	1	1	1	225
Medical College of Virginia—Hospital Division[1-3]	Richmond, Va.	H. Ware, Jr.	OB	7,909	17,372	6	11	3	50
Doctors Hospital[3]	Seattle, Wash.	....	OBG	.....	.....	..	..	1	...
King County Hospital, Unit No. 1 (Harborview)	Seattle, Wash.	R. R. deAlvarez	OBG	1,485	5,793	1	3	3	110
Swedish Hospital[1-3]	Seattle, Wash.	R. H. Stewart	OBG	16,745	.....	2	3	2	100
Virginia Mason Hospital[1-3]	Seattle, Wash.	R. N. Rutherford	OB	2,093	.....	1	1	1	100

Numerical and other references will be found on pages 373 and 374.

12. OBSTETRICS AND GYNECOLOGY—*Continued*

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
St. Luke's Hospital[1-3-295]	Spokane, Wash.	M. Heitman	OBG	1,613	.....	1	1	1	150
Memorial Hospital[1-3]	Charleston, W. Va.	J. L. Crites	OBG	1,091	310	1	1	1	240
St. Mary's Hospital[1-3]	Huntington, W. Va.	E. J. Humphrey	OB	2,082	816	1	1	1	175
University Hospitals[1-3]	Madison, Wis.	J. W. Harris	OBG	875	6,690	2	4	3	50
Columbia Hospital[1-3]	Milwaukee	F. J. Stoddard	OB	1,457	.....	1	1	1	125
Milwaukee County Hospital[1-3-398]	Milwaukee	R. S. Cron	OBG	2,016	4,887	2	4	3	208.92
Milwaukee Hospital[1-3]	Milwaukee	F. J. Hofmeister	OBG	3,348	900	2	4	3	150
Mount Sinai Hospital[1-3]	Milwaukee	B. E. Urdan	OBG	3,605	319	1	2	2	300
St. Joseph's Hospital[1-3]	Milwaukee	G. S. Kilkenny	OBG	6,280	.....	2	4	3	200
St. Luke's Hospital[1-3]	Milwaukee	A. Watts	OBG	2,735	218	1	2	2	275
St. Mary's Hospital[1-38-299]	Milwaukee	J. D. Owen	.....	.....	.....	..	..	..	...
		D. Werner	OBG	3,041	.....	..	3	2	175
Gorgas Hospital[3]	Ancon, C. Z.	I. J. Strumpf	OBG	831	4,899	1	3	1	282.55
Kapiolani Maternity and Gynecological Hospital[1-3]	Honolulu, T. H.	C. C. McCorriston L. Bachman	OBG	4,811	3,138	1	4	2	100
Queen's Hospital[1-3]	Honolulu, T. H.	R. Sakimoto	OBG	3,388	3,182	2	4	2	135
St. Francis Hospital[1-3]	Honolulu, T. H.	K. S. Tom	OBG	2,134	1,129	1	2	1	100
San Juan City Hospital[1-3]	San Juan, P. R.	M. F. Fuster	OBG	5,287	16,602	2	5	3	150

13. OCCUPATIONAL MEDICINE

The following service is approved by the Council on Medical Education and Hospitals.
Hospitals, 1; Assistant Residencies and Residencies, 2

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Saginaw General Hospital[1-3]	Saginaw, Mich.	R. D. Mudd	273	225,596	..	..	1	2	2	320

14. OPHTHALMOLOGY

The following services have been approved by the Council on Medical Education and Hospitals.
Hospitals, 164; Assistant Residencies and Residencies, 571

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital[66]	San Francisco	F. E. Hull	589	13,615	1	3	...
Fitzsimons Army Hospital[1-66]	Denver	B. T. Bowers	2,238	8,718	..	..	...
Army Medical Center[1-66-67]	Washington, D. C.	J. H. King, Jr.	545	29,673	2	6	...
Brooke Army Medical Center[66-280]	San Antonio, Texas	W. T. Sichi	813	13,578	2	6	...
UNITED STATES NAVY							
U. S. Naval Hospital[1]	Oakland, Calif.	C. O. Riggs	334	5,897	..	2	...
U. S. Naval Hospital	San Diego	S. H. Oliver	467	21,080	..	4	...
U. S. Naval Hospital[1]	Bethesda, Md.	S. J. Ryan	325	.....	..	2	...
U. S. Naval Hospital[1]	St. Albans, N. Y.	A. C. Hohn	131	3,430	..	1	...
U. S. Naval Hospital[1]	Philadelphia	F. Harbert	246	10,921	..	3	...
UNITED STATES PUBLIC HEALTH SERVICE							
U. S. Public Health Service Hospital[1-3]	New Orleans, La.	J. B. Peebles	150	2,921	1	3	...
U. S. Public Health Service Hospital[1]	Baltimore, Md.	W. P. Griffey	198	3,475	1	3	...
U. S. Public Health Service Hospital[1-3]	Staten Island, N. Y.	E. B. Thomas	315	5,195	..	2	...
U. P. Public Health Service Hospital[1]	Seattle, Wash.	W. A. Miller	180	4,317	1	3	...
FEDERAL SECURITY AGENCY							
Freedmen's Hospital[1-3]	Washington, D. C.	E. Watson	39	2,016	1	1	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital[1-3]	Tuskegee, Ala.	H. G. Dwiggins	106	5	1	1	...
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	G. C. Struble	211	1,860	2	2	...
Veterans Admin. Hospital[1-3]	Los Angeles	C. S. Mumma	493	4,784	1	3	...
Veterans Admin. Hospital[1]	San Francisco	D. O. Harrington M. Fine	195	1,991	1	3	...
Veterans Admin. Hosp tal[1-72-76]	Atlanta, Ga.	F. P. Calhoun	276	.....	1	2	...
Veterans Admin. Hospital[1]	Hines, Ill.	W. A. Mann	470	318	..	4	...
Veterans Admin. Hospital[1-3]	Wadsworth, Kan.	A. W. McAlester	57	369	1	1	...
Veterans Admin. Hospital[1-3]	Louisville, Ky.	W. Schutz	180	555	1	2	...
Veterans Admin. Hospital[1]	New Orleans, La.	J. H. Allen	170	314	..	1	...
[1-3-122]	Fort Howard, Md.	M. E. Randolph	111	102	..	1	...
[1-3-147]	Dearborn, Mich.	A. D. Ruedemann	801	1,399	1	1	...
[1-3]	Minneapolis	E. W. Hansen	150	146	..	3	...
Veterans Admin. Hospital[1-3]	Jefferson Bks., Mo.	H. Rosenbaum	6,592	.....	1	3	...
Veterans Admin. Hospital[1-3-177]	Brooklyn	M. A. Lasky	160	86	1	2	...
Veterans Admin. Hospital[1-3]	New York City (Bronx)	A. G. DeVoe	336	1,489	1	3	...
Veterans Admin. Hospital[1-3]	Cleveland	J. E. L. Keyes	254	1,114	1	2	...
Veterans Admin. Hospital[1]	Aspinwall, Pa.	M. F. McCaslin	294	.....	1	3	...
Veterans Admin. Hospital[1-3]	Memphis, Tenn.	W. F. Klotz	...	514	1	2	...
[1-3-270-271]	Dallas, Texas	M. Thomas	104	.....	1	2	...
[1-3]	Houston, Texas	E. L. Goar	172	211	1	1	...
[1]	McKinney, Texas	S. B. Gostin	363	2,200	..	1	...
[1]	Richmond, Va.	E. W. Perkins	244	2,967	1	3	...
Veterans Admin. Hospital[1]	Milwaukee	J. B. Hitz	1,199	2,172	2	2	...

Numerical and other references will be found on pages 373 and 374.

14. OPHTHALMOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered ^{8}	Total Residencies Offered ^{8}	Beginning Stipend (Month)
Jefferson-Hillman Hospital $^{1-3}$	Birmingham, Ala.	A. Callahan	912	9,917	..	8	...
Arkansas Baptist Hospital $^{1-3-27}$	Little Rock, Ark.	R. Cook	460	.....	1	1	225
General Hospital of Fresno County $^{1-3}$	Fresno, Calif.	T. Steinberg	200	6,478	1	2	231
Los Angeles County Hospital ^{1}	Los Angeles	W. J. Endres	1,037	23,119	..	4	190
Los Angeles Eye and Ear Hospital $^{1-3}$	Los Angeles	O. H. Ellis	615	3,877	1	2	150
White Memorial Hospital $^{1-3}$	Los Angelos	S. Brownsberger	223	7,828	1	2	146.25
San Diego County General Hospital $^{1-3}$	San Diego, Calif.	G. P. Lauren	83	2,712	1	2	150
Franklin Hospital $^{1-3}$	San Francisco	C. A. Dickey	101	11,756	1	1	125
Green's Eye Hospital $^{1-3}$	San Francisco	V. V. Suglian	566	24,818	1	2	100
Stanford University Hospitals $^{1-3}$	San Francisco	A. E. Maumenee	805	8,965	1	3	50
University of California Hospital $^{1-3}$	San Francisco	F. C. Cordes	329	12,210	..	4	87
University of Colorado Medical Center		....	...	.....	2	4	150
Colorado General Hospital $^{1-3}$	Denver, Colo.	R. W. Danielson	131	7,897	..	..	...
Denver General Hospital $^{1-3}$	Denver, Colo.	G. A. Filmer	80	.....	..	..	...
Grace-New Haven Community	nn.	R. M. Fasanella	435	89	1	2	60
Episcopal Eye, Ear and Throa	C.	H. R. Downey	1,493	28,617	2	6	150
Gallinger Municipal Hospital ^{1}	C.	E. Cummings R. A. Cox	111	4,516	1	2	...
Grady Memorial Hospital $^{1-3}$	Atlanta, Ga.	F. P. Calhoun, Jr.	491	16,180	2	6	20
Chicago Eye, Ear, Nose and Throat Hospital $^{1-3}$	Chicago	A. A. Stonehill	302	22,789	3	3	100
Cook County Hospital $^{1-3}$	Chicago	J. E. Lebensohn	543	15,709	6	6	50
Illinois Eye and Ear Infirmary $^{1-3}$	Chicago	W. F. Hughes, Jr.	1,540	62,027	9	19	60
Mercy Hospital $^{1-3}$	Chicago	L. G. Hoffman	72	2,105	1	1	100
Michael Reese Hospital $^{1-3}$	Chicago	T. Zekman	705	5,370	2	3	50
Passavant Memorial Hospital $^{1-3}$	Chicago	D. Vail	571	.....	1	2	50
Presbyterian Hospital $^{1-3}$	Chicago	J. M. Donegan	270	5,455	2	3	125
Provident Hospital $^{1-3}$	Chicago	W. M. Jones	...	.....	1	1	...
St. Joseph Hospital $^{1-3}$	Chicago	J. Donegan	32	319	1	1	75
St. Luke's Hospital $^{1-3}$	Chicago	J. W. Clark	320	2,265	1	2	...
University of Chicago Clinics $^{1-3}$	Chicago	A. C. Krause	136	10,706	3	6	175
University of Illinois Research and Educational Hospitals $^{1-3-90-91}$	Chicago	W. F. Hughes, Jr.	83	7,785	..	2	60
Wesley Memorial Hospital $^{1-3}$	Chicago	W. A. Mann	343	7,617	1	2	50
Woodlawn Hospital $^{1-3}$	Chicago	F. M. Whitsell	327	5,243	1	1	150
Evanston Hospital $^{1-3}$	Evanston, Ill.	G. R. Soper	134	1,038	1	1	50
Indianapolis General Hospital $^{1-102-103}$	Indianapolis, Ind.	E. Dyar	190	6,707	1	2	150
Indiana University Medical Center $^{1-103}$	Indianapolis, Ind.	F. Wilson	192	3,772	2	5	150
University Hospitals $^{1-3}$	Iowa City, Iowa	A. E. Graley	1,334	3,338	2	6	75
University of Kansas Medical Center $^{1-3}$	Kansas City, Kan.	A. Lemoine, Jr.	501	4,992	2	3	125
Louisville General Hospital $^{1-3}$	Louisville, Ky.	C. D. Townes	159	6,474	1	2	100
Charity Hospital of Louisiana Independent Unit $^{1-3}$	New Orleans	J. H. Larose A. Filla	861	10,104	1	3	40
Louisiana State University Unit $^{1-3}$	New Orleans	G. M. Haik	651	7,798	1	3	40
Tulane University Unit $^{1-3}$	New Orleans	J. H. Allen	621	9,193	1	3	40
Eye, Ear, Nose and Throat Hospital $^{1-3}$	New Orleans	P. Renken	1,335	17,974	8	11	35
Touro Infirmary ^{1}	New Orleans	E. E. Allgeyer	100	2,205	1	1	35
Eye, Ear and Throat Charity Hospital $^{1-3}$	Baltimore	C. A. Clapp	1,054	11,530	1	3	...
Johns Hopkins Hospital $^{1-3}$	Baltimore	A. C. Woods	1,746	16,218	..	6	...
University Hospital $^{1-3}$	Baltimore	F. E. Knowles, Jr.	39	3,693	1	2	50
Boston City Hospital $^{1-3}$	Boston	J. J. Regan	640	21,974	..	7	132
Massachusetts Eye and Ear Infirmary $^{1-3-138}$	Boston	E. B. Dunphy	2,626	31,616	..	11	41
Massachusetts Memorial Hospitals $^{1-3}$	Boston	T. *Gundersen*	242	3,534	..	2	50
University Hospital $^{1-3}$	Ann Arbor, Mich.	F. B. Fralick	630	7,698	3	9	134.16
City of Detroit Receiving Hospital $^{1-3}$	Detroit	A. D. Ruedemann	492	12,279	4	10	254
Harper Hospital $^{1-3}$	Detroit	A. S. Hale	1,410	5,542	1	3	225
Henry Ford Hospital $^{1-3}$	Detroit	E. L. Whitney	397	21,757	1	4	225
Wayne County General Hospital and Infirmary $^{1-3}$	Eloise, Mich.	F. T. May	152	2,586	1	2	278.33
Minneapolis General Hospital $^{1-3}$	Minneapolis	W. K. Haven	148	3,671	1	2	169
University of Minnesota Hospitals $^{1-3}$	Minneapolis	E. W. Hansen	167	6,001	1	3	150
Mayo Foundation $^{1-3}$	Rochester, Minn.	C. W. Rucker	6,622	43,612	4	14	150
Ancker Hospital $^{1-3}$	St. Paul, Minn.	L. T. Simons	107	4,280	..	2	150
Charles T. Miller Hospital $^{1-3-156}$	St. Paul, Minn.	E. Burch	545	2,259	1	1	150
St. Louis County Hospital $^{1-3}$	Clayton, Mo.	D. Bisno	26	1,120	1	2	225
Kansas City General Hospital No. 1	Kansas City, Mo.	W. R. Eubank	157	4,633	1	2	75
Barnes Hospital $^{1-3}$	St. Louis	L. Post	1,747	22,819	4	7	50
Homer G. Phillips Hospital $^{1-3}$	St. Louis	L. T. Post	165	3,333	2	6	190
St. Louis City Hospital $^{1-3}$	St. Louis	D. Bisno	134	5,915	1	2	137.75
St. Mary's Group of Hospitals $^{1-3}$		J. F. Hardesty	252	6,740	1	3	65
University of Nebraska Hospital		J. H. Judd	128	2,310	1	3	175
Medical Center-Jersey City Hosp		F. X. Brophy	139	4,839	1	3	66.75
Newark Eye and Ear Infirmary $^{1-}$		L. W. Hughes	1,218	7,017	2	2	125
Brooklyn Eye and Ear Hospital $^{1-3}$	Brooklyn	W. V. Moore	3,020	46,998	4	8	...
Jewish Hospital $^{1-3}$	Brooklyn	M. Lasky	238	8,815	1	3	75
Kings County Hospi	Brooklyn	W. Moehle	384	12,407	2	2	98
Long Island College	Brooklyn	H. F. Schilback	196	4,076	1	2	75
Buffalo General Hospital $^{1-3}$	Buffalo	I. J. Koenig	414	2,579	..	1	125
Edward J. Meyer Memorial Hospital $^{1-187}$	Buffalo	I. J. Koenig	131	5,070	2	4	179
Millard Fillmore Hospital $^{1-3}$	Buffalo	E. B. Hague	241	10	1	1	...
Queens General Hospital $^{1-3}$	Jamaica, N. Y.	T. D'Angelo	254	5,805	1	2	98.33
Bellevue Hospital Center Division IV—New York University College of Medicine $^{1-3-208}$	New York City	A. G. DeVoe	493	18,718	4	10	98
Beth Israel Hospital $^{1-3}$	New York City	M. L. Berliner	140	2,939	1	1	75
Bronx Eye and Ear Infirmary ^{3}	New York City	M. Jaffe N. Gould	959	18,248	1	2	50
Goldwater Memorial Hospital $^{1-3}$	New York City	S. Fox	1,621	934	1	3	98
Harlem Eye and Ear Hospital $^{1-3}$	New York City	....	127	.....	..	..	93.32
Lenox Hill Hospital $^{1-3}$	New York City	B. Payne	353	4,290	1	2	180
Manhattan Eye, Ear and Throat Hospital $^{1-3}$	New York City	R. T. Paton	2,934	60,550	5	10	...
Metropolitan Hospital $^{1-3}$	New York City	C. A. Turtz	63	5,465	1	2	98
Montefiore Hospital $^{1-3}$	New York City	S. Gartner	87	4,847	..	1	60
Mount Sinai Hospital $^{1-3}$	New York City	H. Minsky	365	10,323	1	2	...
New York City Hospital $^{1-3}$	New York City	I. Givner	199	5,199	2	3	150
New York Eye & Ear Infirmary $^{1-3}$	New York City	C. Berens	3,119	60,113	6	18	...
New York Hospital $^{1-3}$	New York City	J. M. McLean	672	13,224	3	5	25
New York Polyclinic Medical School and Hospital $^{1-3}$	New York City	H. H. Romaine	1,147	17,169	1	2	...
New York University-Bellevue Medical Center	(See also Bellevue Hospital Center, Div. IV, and Goldwater Memorial Hospital)						
University Hospital $^{1-3}$	New York City	A. G. DeVoe	255	4,270	..	..	85
Presbyterian Hospital $^{1-3}$	New York City	J. H. Dunnington	2,613	27,888	8	9	208.33

Numerical and other references will be found on pages 373 and 374.

14. OPHTHALMOLOGY—*Continued*

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
St. Luke's Hospital[1-3]	New York City	W. G. Frey	238	5,713	1	1	60
St. Mary's Hospital[1-3]	Rochester, N. Y.	C. T. Sullivan	410	1,252	1	1	200
Strong Memorial-Rochester Municipal Hospitals[1-3]	Rochester, N. Y.	J. F. Gipner	444	4,466	..	2	41.66
Sea View Hospital[1-3]	Staten Island, N. Y.	S. L. Saltzman	1,949	.....	1	1	150
State University of New York Medical Center[1-3-210]	Syracuse, N. Y.	H. Joy	...	.....	..	1	191.66
Grasslands Hospital[1-3]	Valhalla, N. Y.	C. Wood	125	6,318	1	3	125
Duke Hospital[1-3]	Durham, N. C.	W. B. Anderson	402	3,736	3	8	25
McPherson Hospital[1-3-226]	Durham, N. C.	S. D. McPherson, Sr.	637	21,340	1	3	100
North Carolina Baptist Hospital[1-3]	Winston-Salem, N. C.	R. W. Roberts	152	1,778	1	3	41.66
Cincinnati General Hospital[1-3]	Cincinnati	D. J. Lyle	320	8,325	2	4	...
City Hospital[1-3]	Cleveland	G. L. Miller	153	5,743	..	..	100
Cleveland Clinic Hospital[1-3]	Cleveland	R. J. Kennedy	327	17,308	2	6	175
St. Luke's Hospital[1-3]	Cleveland	M. W. Jacoby	360	1,809	1	1	120
University Hospitals[1-3]	Cleveland	L. V. Johnson	844	6,896	1	3	35
University Hospitals University Hospital[1-3]	Columbus, Ohio	A. M. Culler	238	8,555	1	4	150
University Hospitals[1-3]	Oklahoma City	J. R. Reed	362	3,004	1	2	50
University of Oregon Medical School Hospitals and Clinics[1-252-253]	Portland, Ore.	K. C. Swan	292	13,999	2	6	85
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	C. H. Jacobs	298	7,680	..	2	125
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	E. Spaeth	836	2,812	3	5	...
Hospital of the University of Pennsylvania[1-3]	Philadelphia	F. Adler	560	8,835	3	9	...
Jefferson Medical College Hospital[1-3]	Philadelphia	A. E. Town	158	5,950	..	..	...
Philadelphia General Hospital[1-3]	Philadelphia	E. J. Donnelly	161	5,577	1	2	112.34
Temple University Hospital[1-3]	Philadelphia	G. G. Gibson	248	3,588	2	6	50
Wills Eye Hospital[1-3]	Philadelphia	....	3,902	90,330	6	12	...
Montefiore Hospital[1-3]	Pittsburgh	H. E. Thorpe	487	1,930	1	3	58.33
Pittsburgh Medical Center[1-3-261]	Pittsburgh	M. F. McCaslin	2,284	9,147	2	4	125
Robert Packer Hospital[1-3]	Sayre, Pa.	H. D. Rentschler	1,335	10,390	1	1	100
Roper Hospital[1-3]	Charleston, S. C.	P. G. Jenkins	578	2,485	1	3	83
City of Memphis Hospitals[1-3]	Memphis, Tenn.	P. Lewis	299	.....	1	2	35
Memphis Eye, Ear, Nose and Throat Hospital[1-3]	Memphis, Tenn.	....	4,326	8,747	4	8	150
Parkland Hospital[1-3]	Dallas, Texas	K. Cox	79	2,034	2	2	50
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	C. S. Sykes	210	4,545	1	3	...
Jefferson Davis Hospital[1]	Houston, Texas	E. L. Goar	199	5,914	1	3	50
University of Virginia Hospital[1-3]	Charlottesville, Va.	E. W. Burton	344	3,856	1	3	50
Milwaukee County Hospital[1-3]	Milwaukee	E. F. Carl	335	6,554	1	3	208.92
Medical College of Virginia— Hospital Division[1-3]	Richmond, Va.	R. H. Courtney	411	6,809	1	3	...
Gill Memorial Eye, Ear and Throat Hospital[1-3]	Roanoke, Va.	E. G. Gill	440	9,855	3	12	300
King County Hospital, Unit No. 1 (Harborview)[1-203]	Seattle, Wash.	R. C. Laughlin	111	2,033	..	1	130
University Hospitals	Madison, Wis.	F. A. Davis	541	3,474	1	3	50
Gorgas Hospital[3]	Ancon, C. Z.	H. W. Shreck	222	10,288	1	3	...

15. ORTHOPEDIC SURGERY

Type of training acceptable to Board: A—Adult orthopedics; C—Children's orthopedics; F—Fractures. The following services have been approved by the Council and the American Board of Orthopedic Surgery as offering *acceptable training in adult orthopedics, children's orthopedics and fractures.* Training in the basic sciences is given either as an integral part of these services or as a separate course. Services collaborating in an integral plan of training are designated by a program number, a list of which is found on page 338.

Residents *completing their training in these hospitals* are eligible for full certification by the American Board of Orthopedic Surgery, including children's orthopedic surgery.

Hospitals, 199; Assistant Residencies and Residencies, 727

FEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Identification	Beginning Stipend (Month)
UNITED STATES ARMY											
Army Medical Center[1-66-67]	Washington, D. C.	A. W. Spittler	ACF	1,467	7,573	4	4	3	9	..	...
Brooke Army Medical Center[66-280]	San Antonio, Texas	M. S. Thompson	ACF	2,471	7,971	3	2	5	14	..	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE											
Freedmen's Hospital[1-3]	Washington, D. C.	J. R. Gladden	ACF	231	3,623	6	..	..	1	..	...
VETERANS ADMINISTRATION											
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	R. H. Hall	AF	378	1,344	2	2	3	3	60	...
Veterans Admin. Hospital[1]	San Francisco	L. C Abbott									
Veterans Admin. Hospital[1]	Hines, Ill.	D. E. King	AF	359	636	6	1	1	3	2,3	...
Veterans Admin. Hospital[1]	Indianapolis, Ind.	H. A. Sofield	AF	1,594	2,248	15	2	1	10	50	...
Veterans Admin. Hospital[1-3]	Des Moines, Iowa	D. C. Strange	AF	420	.....	5	4	..	1	8	...
Veterans Admin. Hospital[1-3]	Wadsworth, Kan.	D. N. Gibson	AF	988	990	2	1	1	3	55	...
Veterans Admin. Hospital[1-3]	Louisville, Ky.	R. H. Kiene	AF	172	276	12	8	3	6	18	...
Veterans Admin. Hospital[1]	New Orleans, La.	K. A. Fischer	AF	717	471	8	6	2	4	9	...
Veterans Admin. Hospital[1-3]	Fort Howard, Md.	R. H. Alldredge	AF	706	1,742	1	..	1	4	10	...
Veterans Admin. Hospital[1-3]	Boston	J. P. Miller	AF	205	364	3	1	2	3	46	...
Veterans Admin. Hospital[1-3]	Minneapolis	J. S. Barr	AF	306	778	2	1	..	6	13	...
Veterans Admin. Hospital[1-3]	Brooklyn	E. T. Evans	AF	940	449	4	3	..	6	16	...
Veterans Admin. Hospital[1-3]	Buffalo	A. Schildhaus	AF	638	1,038	5	3	1	3	52	...
Veterans Admin. Hospital[1-3-206]	New York City (Bronx)	J. D. MacCallum	AF	655	.....	2	1	..	2	24	...
[illegible]	Cleveland	P. D. Wilson	AF	687	3,820	6	3	1	4	22	...
[illegible]	Oklahoma City	W. H. McGaw	AF	826	888	5	4	3	7	27	...
[illegible]	Portland, Ore.	W. K. West	AF	435	.....	..	..	..	2	53	...
Veterans Admin. Hospital[3]	Columbia, S. C.	H. C. Blair	AF	611	940	..	..	1	3	54	...
Veterans Admin. Hospital[1-3]	Memphis, Tenn.	J. T. Green	AF	1,029	889	..	..	1	3	45	...
Veterans Admin. Hospital[1-3]	Dallas, Texas	D. M. Street	AF	1,333	1,198	8	6	4	10	1	...
Veterans Admin. Hospital[1-3]	Houston, Texas	P. M. Girard	AF	417	.....	1	1	1	3	47	...
Veterans Admin. Hospital	Salt Lake City, Utah	B. F. Boylston	AF	1,014	2,016	3	2	1	2	49	...
Veterans Admin. Hospital[1]	Richmond, Va.	J. A. Gubler	AF	431	786	..	..	..	1	34	...
Veterans Admin. Hosptal[1]	Milwaukee	R. D. Butterworth	AF	944	2,172	1	1	1	3	35	...
		P. L. Carnesale	AF	1,750	2,364	8	7	3	3	40	...

Numerical and other references will be found on pages 373 and 374.

15. ORTHOPEDIC SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Program Identification	Beginning Stipend (Month)
Jefferson-Hillman Hospital [1-3]	Birmingham, Ala.	J. D. Sherrill	ACF	1,112	4,466	19	9	1	3	..	...
City Hospital	Mobile, Ala.	W. C. Hannon	ACF	614	1,416	11	1	1	1	..	175
Arkansas Children's Home and Hospital [1]	Little Rock, Ark.	S. Thompson	C	467	1,022	..	..	1	1	1	...
Childrens Hospital [1-3]	Los Angeles	J. C. Wilson	C	688	5,281	..	..	..	2	60	150
Los Angeles County Hospital [1]	Los Angeles	A. J. Neufeld	ACF	3,359	46,728	199	12	..	14	..	190
Orthopaedic Hospital [3]	Los Angeles	A. Brockway	ACF	2,328	50,381	..	..	2	5	..	150
Samuel Merritt Hospital [1]	Oakland, Calif.	H. H. Hitchcock	AF	1,424	.....	6	1	..	2	2	105
Children's Hospital [1]	San Francisco	L. C. Abbott	C	329	1,064	1	..	..	1	2	175
Franklin Hospital [1-3]	San Francisco	L. C. Abbott	A	1,223	6,436	9	3	1	3	2	125
San Francisco Hospital											
Stanford University Service [1]	San Francisco	F. Cox	AF	986	.....	62	1	1	2	2,3	175
University of California Service [1]	San Francisco	E. R. Schottstaedt	AF	1,068	.....	65	..	1	3	2,3	175
Shriners Hospital for Crippled Children [1]	San Francisco	F. C. Bost	C	250	3,215	..	..	..	2	2	100
Stanford University Hospitals [1-3]	San Francisco	D. E. King	AC	762	4,219	..	..	1	3	3	50
University of California Hospital [1-3]	San Francisco	L. C. Abbott	A	251	8,026	..	..	..	2	2	87
Children's Hospital [1-3]	Denver	J. T. Jacobs	C	711	3,353	..	..	..	2	4	...
University of Colorado Medical Center		....	.....	...	.....	..	..	1	3	4	150
Colorado General Hospital [1-3-22]	Denver	A. Thomas	AF	269	1,817	14	8	..	..	..	...
Denver General Hospital [1-3-22]	Denver	I. E. Hendryson	AF	513	3,565	37	25	..	..	..	...
Hartford Hospital [1-3]	Hartford, Conn.	R. G. Reynolds	AF	1,315	661	25	14	1	2	5	50
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	N. M. Shutkin	AF	810	5,764	11	2	1	2	5	50
Hospital of St. Raphael [3]	New Haven, Conn.	D. O'Connor	AF	634	1,194	16	..	2	6	43	100
Newington Home and Hospital for Crippled Children [1-3]	Newington, Conn.	F. S. Jones	C	427	3,682	..	..	..	3	5	200
Alfred I. duPont Institute of the Nemours Foundation [1-3]	Wilmington, Del.	A. R. Shands	C	232	2,719	..	..	2	2	19,20	100
Gallinger Municipal Hospital [1-3]	Washington, D. C.	M. C. Cobey J. Neviaser	ACF	693	5,581	22	8	3	5	..	...
American Legion Hosp. for Crippled Children [1-3]	St. Petersburg, Fla.	R. C. Lonergan	C	681	4,789	4	2	..	1	7	150
University Hospital	Augusta, Ga.	P. B. Wright	ACF	893	.....	22	1	2	6	..	160
Children's Memorial Hospital [1-3]	Chicago	C. N. Pease	C	142	1,935	..	..	..	1	7	75
Cook County Hospital [1-3]	Chicago	F. N. Shapiro	ACF	515	7,220	14	12	4	4	..	50
Northwestern University Medical Center											
Passavant Memorial Hospital [1-3]	Chicago	J. Stack E. Hauser	A	735	.....	1	1	..	..	7	...
Wesley Memorial Hospital [1-3]	Chicago	E. L. Compere	AF	1,891	2,806	7	3	1	2	7	50
Evanston Hospital [1-3]	Evanston, Ill.	V. Turner	AF	629	1,493	9	..	1	1	7	50
St. Elizabeth Hospital [3]	Chicago	C. S. Scuderi	F	697	.....	13	..	1	1	7	125
Shriners Hospitals for Crippled Children [3]	Chicago	H. A. Sofield	C	288	2,475	..	..	3	3	50	33.33
University of Chicago Clinics [1-3]	Chicago	C. H. Hatcher	ACF	677	5,191	10	9	1	4	..	175
University of Illinois Research and Educational Hosptials [1-3]	Chicago	F. A. Chandler	ACF	734	12,224	7	7	2	6	..	60
St. Francis Hospital [1-3]	Evanston, Ill.	J. J. Fahey	AF	1,168	3,366	23	4	..	1	7	150
West Suburban Hospital	Oak Park, Ill.	H. A. Sofield	AF	736	2,147	10	1	1	1	7,33	150
Indianapolis General Hospital [1]	Indianapolis	T. Horwitz	AF	747	5,033	41	6	1	2	8	150
Indiana University Medical Center [1-3]	Indianapolis	G. J. Garceau	ACF	939	10,875	19	5	..	6	8	175
St. Vincent's Hospital [1]	Indianapolis	G. J. Garceau	AF	1,240	3,447	17	9	1	2	8	250
University Hospitals [1-3]	Iowa City, Iowa	C. B. Larson	ACF	2,351	3,934	16	11	4	10	55	75
University of Kansas Medical Center [1-3]	Kansas City, Kan.	J. Weaver	ACF	588	3,240	11	3	1	3	..	125
Good Samaritan Hospital [1-3]	Lexington, Ky.	E. E. Meyers	ACF	609	.....	5	..	1	1	59	225
St. Joseph Hospital [1-3]	Lexington, Ky.	M. G. Brown	ACF	705	.....	6	2	..	..	59	...
Kosair Crippled Children Hospital [1-3]	Louisville, Ky.	K. D. Leatherman	C	719	755	1	..	2	4	9	100
Louisville General Hospital [1-3]	Louisville, Ky.	K. A. Fischer	AF	560	6,810	31	4	1	2	9	150
Charity Hospital of Louisiana											
Louisiana State University Unit [1-3]	New Orleans	H. T. Simon	ACF	1,416	16,021	32	7	2	6	..	40
Tulane University Unit [1-3]	New Orleans	J. Wickstrom	ACF	1,328	17,729	37	9	2	6	10	40
Ochsner Foundation Hospital [1-3]	New Orleans	G. A. Caldwell	AF	254	5,588	2	1	1	2	56	150
Touro Infirmary [1-116]	[illegible]	R. H. Alldredge	AF	1,049	1,626	14	2	1	3	10	35
Confederate Memorial		T. M. Oxford	ACF	757	6,073	16	2	2	6	..	60
Baltimore City Hospi		A. Voshell	AF	788	2,989	..	..	..	1	58	75
Children's Hospital S	Baltimore	G. E. Bennett	C	727	816	4	1	1	2	46,57	...
James Lawrence Kernan Hospital for Crippled Children [1-3]	Baltimore	A. F. Voshell	C	436	3,576	2	..	..	2	58	100
Johns Hopskins Hospital [1-3]	Baltimore	R. A. Robinson	AF	687	9,712	10	1	..	3	57	...
University Hospital [1-3]	Baltimore	A. F. Voshell	AF	217	3,733	8	5	..	1	58	...
Boston City Hospital [1-3]	Boston	R. F. Sullivan	AF	1,234	32,545	19	..	..	7	13,66	132
Children's Medical Center [1-3]	Boston	W. T. Green	C	645	16,813	4	..	4	9	11	50
Lahey Clinic [1-3]	Boston	G. E. Haggart	A	760	7,351	2	1	4	4	66	150
Massachusetts General Hospital [1-3]	[illegible]	J. S. Barr	ACF	1,372	7,931	13	4	5	6	11	100
Massachusetts Hospital School	[illegible]	P. L. Norton	CF	155	40	..	..	..	2	13,66	...
Shriners Hospital for Crippled	[illegible]	G. deN. Hough, Jr.	C	306	3,625	...	..	2	2	33,66	50
Worcester City Hospital [1-3]	[illegible]	J. B. Kelley	ACF	1,011	.....	28	8	1	2	..	200
University Hospital [1-3]	Ann Arbor, Mich.	C. E. Badgley	ACF	1,187	7,830	12	6	4	12	..	164.16
Children's Hospital [1-3]	Detroit	F. Fischer	C	263	2,990	..	..	..	2	12	100
City of Detroit Receiving Hospital [1-3]	Detroit	A. Goetz	F	557	3,412	19	1	..	2	12	254
Harper Hospital [1-3]	Detroit	C. W. Peabody	A	701	1,692	3	1	2	2	12	225
Henry Ford Hospital [1-3]	Detroit	C. L. Mitchell	ACF	1,009	17,567	9	4	..	6	..	225
Blodgett Memorial Hospital [1-3]	Grand Rapids, Mich.	J. T. Hodgen	ACF	396	2,935	2	..	1	3	..	200
Borgess Hospital [1-3]	Kalamazoo, Mich.	H. Stryker	ACF	310	6,570	..	..	1	1	..	200
Shriners Hospital for Crippled Children [1-3]	Minneapolis	W. H. Cole	C	187	622	..	..	2	2	16	...
University of Minnesota Hospitals [1-3]	Minneapolis	W. Cole	A	211	1,507	5	..	1	3	16	169
Mayo Foundation [1-3]	Rochester, Minn.	R. K. Ghormley	ACF	5,358	18,737	8	5	5	16	..	150
Gillette State Hospital for Crippled Children [1-3]	St. Paul, Minn.	C. C. Chatterton	C	866	3,885	2	1	..	..	16	125
Mississippi Baptist Hospital	Jackson, Miss.	T. H. Blake	ACF	1,307	3,842	9	3	1	3	..	...
University Hospital [1]	Columbia, Mo.	W. J. Stewart	C	302	.....	1	1	..	..	7	...
Children's Mercy Hospital [1-3]	Kansas City, Mo.	N. S. Pickard	C	254	2,110	1	..	1	1	18	125
Kansas City General Hospital No. 1	Kansas City, Mo.	R. L. Diveley	AF	758	4,330	55	22	..	2	18	75
St. Luke's Hospital [1-3]	Kansas City, Mo.	R. L. Diveley	ACF	1,105	.....	..	..	1	3	18	175
Barnes Hospital [1-3]	St. Louis	J. A. Key	ACF	951	4,915	6	2	1	5	..	50
St. Mary's Group of Hospitals [1-3]	St. Louis	R. M. O'Brien	ACF	822	3,562	10	4	2	6	..	65
University of Nebraska Hospital [1-3]	Omaha, Nebr.	W. R. Hamsa	ACF	141	1,126	4	2	1	2	..	175
Monmouth Memorial Hospital [1-3]	Long Branch, N. J.	B. M. Halbstein	ACF	786	2,328	18	8	1	3	..	200
Carrie Tingley Hospital for Crippled Children [1-3]	Truth or Consequences, N. Mex.	W. L. Minear	C	1,430	4,029	1	..	..	3	7	150
Albany Hospital [1-3]	Albany, N. Y.	J. W. Ghormley	AF	711	917	8	1	1	3	42	135
House of St. Giles the Cripple [1-3]	Brooklyn	M. Cleveland	C	160	8,433	..	..	3	3	26,41	100
Kings County Hospital [1-3]	Brooklyn	H. C. Fett C. Vitale	ACF	937	10,181	10	4	4	8	15	98

Numerical and other references will be found on pages 373 and 374.

15. ORTHOPEDIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Identification	Beginning Stipend
Long Island College Hospital[1-3]	*Brooklyn*	H. C. Fett	AF	629	2,537	9	2	1	3	39	75
St. Charles Hospital and Orthopedic Clinic[1-3]	Brooklyn	H. C. Fett	C	277	6,801	..	..	2	2	39,52	125
Buffalo General Hospital[1-3]	Buffalo	F. N. Potts	AF	844	941	8	2	..	4	24	125
Children's Hospital[1-3]	Buffalo	F. N. Potts	C	306	1,224	..	..	..	3	24	75
Meadowbrook Hospital[1-3]	Hempstead, N. Y.	O. C. Hudson	F	1,057	1,171	62	14	2	2	38	225
Nassau Hospital[1-3]	Mineola, N. Y.	O. C. Hudson	AF	1,817	.....	17	..	1	2	88	...
Bellevue Hospital Center Division IV—New York University *Post-Graduate* Medical School[1-3]	New York City	W. A. L. Thompson	ACF	329	5,472	21	8	3	9	51	98
Hospital for Joint Diseases[1-3]	New York City	J. Buchman I. Zadek	ACF	2,669	26,409	18	5	6	18	..	70
Hospital For Special Surgery[1-3-206]	New York City	P. D. Wilson	ACF	1,623	25,594	3	2	4	9	22	160
Metropolitan Hospital[1-3]	New York City	M. J. Wilson	ACF	705	3,895	41	5	2	3	67	98
Mount Sinai Hospital[1-3]	New York City	R. Lippmann	ACF	381	5,431	2	1	1	3	..	60
New York Polyclinic Medical School and Hospital[1-3]	New York City	D. M. Bosworth	F	245	2,214	2	1	1	2	26	...
New York University-Bellevue Medical Center	New York City	(See Bellevue Hospital Center, Div. IV and Rehabilitation Hospital, West Haverstraw, N. Y.)									
Presbyterian Hospital (New York Orthopedic Dispensary *and Hospital)*[1-3]	New York City	A. D. Smith	ACF	2,469	38,758	8	2	6	18	..	209.33
St. Luke's Hospital[1-3]	New York City	D. M. Bosworth	ACF	790	4,622	5	2	1	3	41	60
St. Vincent's Hospital[1-3]	New York City	D. M. Bosworth	F	599	714	7	1	1	1	26	150
St. Charles Hospital[1-3]	Port Jefferson, N. Y.	F. S. Child	C	536	15,196	1	..	6	6	38,43	150
Rochester General Hospital[1-3]	Rochester, N. Y.	H. B. Crawford	A	756	1,273	5	8	..	..	31	100
Strong Memorial-Rochester Municipal Hospitals[1-3]	Rochester, N. Y.	R. P. Schwartz	ACF	1,088	4,073	..	..	..	6	31	41.66
Ellis Hospital[1]	Schenectady, N. Y.	W. Gazeley	AC	1,475	1,307	6	1	1	3	42	150
Sea View Hospital[1-3]	Staten Island, N. Y.	D. M. Bosworth	A	194	.....	5	..	3	3	26	150
Rehabilitation *Hospital*[1-3]	West Haverstraw, N. Y.	J. C. McCauley, Jr.	AC	572	607	6	2	..	..	14,51	225
Charlotte Memorial Hospital[1-3]	Charlotte, N. C.	H. Winkler	AF	1,520	1,855	17	7	1	3	48	150
Duke Hospital[1-3]	Durham, N. C.	L. D. Baker	ACF	867	5,890	1	1	6	17	19	25
North Carolina Orthopedic Hospital	Gastonia, N. C.	W. M. Roberts	C	349	6,487	2	..	2	2	19	...
Children's Hospital[1-3]	Akron, Ohio	P. C. Doran	C	334	396	1	1	2	8	15	250
City Hospital[1-3]	Akron, Ohio	A. Davis	AF	1,521	530	17	3	1	4	15	250
Children's Hospital[1]	Cincinnati	J. A. Freiberg	C	.....	.....	..	..	..	..	17	45
Cincinnati General Hospital[1-3]	Cincinnati	J. A. Freiberg	AF	190	3,081	5	3	2	6	17	...
Jewish Hospital[1-3]	Cincinnati	J. A. Freiberg	A	696	420	6	3	..	1	17	165
Cleveland Clinic Hospital[1-3]	Cleveland	J. A. Dickson	ACF	812	13,541	5	1	2	8	..	175
University Hospitals[1-3]	Cleveland	N. C. H. Herndon	ACF	902	4,212	13	7	1	2	..	62.50
Mount Carmel Hospital[1-3]	Columbus, Ohio	H. B. Lacey	AF	1,269	962	9	2	2	2	25	250
University Hospitals											
Children's Hospital[1-3]	Columbus, Ohio	H. Lacey	C	486	.....	..	..	..	2	25	...
University Hospital[1-3]	Columbus, Ohio	J. D. Wilson	AF	.....	.....	..	..	..	6	25	150
White Cross Hospital[1-3]	Columbus, Ohio	C. W. Dawson	AF	1,106	.....	5	..	1	3	25	375
Elyria Memorial Hospital[1-3]	Elyria, Ohio	C. H. Heyman	C	216	1,878	..	..	..	2	27	220
St. Vincent's Hospital[1-3]	Toledo, Ohio	A. L. Bershon	ACF	1,247	.....	8	1	1	2	..	225
Bone and Joint Hospital[3]	Oklahoma City	E. D. McBride	AF	1,982	18,967	5	1	1	4	53	200
St. Anthony Hospital[1]	Oklahoma City	W. K. West	A	1,279	633	7	1	1	1	53	150
University Hospitals[1-3-245]	Oklahoma City	D. H. O'Donoghue	ACF	997	7,528	7	4	3	6	53	50
Emanuel Hospital[1-3]	Portland, Ore.	J. Mason	AF	1,879	.....	18	7	1	2	28	100
Shriners Hospital for Crippled Children[1-3]	Portland, Ore.	L. S. Lucas	C	346	2,904	1	..	..	1	28	85
University of Oregon Medical School Hospitals and Clinics[1-250-253]	Portland, Ore.	L. S. Lucas	AF	529	5,059	32	17	2	8	28	85
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	L. F. Bush	AF	637	11,231	9	2	1	1	6	100
State Hospital for Crippled Children[1]	*Elizabethtown, Pa.*	T. *Outland*	C	267	2,937	..	..	..	3	21,56	230.50
Hamot Hospital[1-3]	Erie, Pa.	C. W. Fortune	ACF	1,386	1,165	13	6	1	2	..	200
Children's Hospital[1-3]	Philadelphia	J. T. Nicholson	C	177	3,011	..	9	21	1	23	...
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	J. T. Nicholson	A	236	1,614	5	2	1	1	23	150
Hospital of the University of Pennsylvania[1-3]	Philadelphia	P. Colonna	ACF	646	5,908	1	..	..	7	20	...
Jefferson Medical College Hospital[1-3]	Philadelphia	A. F. DePalma	AF	825	4,137	6	..	4	9	21	100
Pennsylvania Hospital[1-3]	Philadelphia	J. T. Nicholson	F	205	1,902	..	..	..	1	23	20
Philadelphia General Hospital[1-3]	Philadelphia	I. Stein	ACF	658	6,122	69	14	3	6	23	112.34
Shriners Hospital for Crippled Children[1-3]	Philadelphia	J. R. Moore	C	207	3,059	..	..	1	3	29	50
Temple University Hospital[1-3]	Philadelphia	J. R. Moore	AF	1,129	5,052	18	6	1	3	29	50
Allegheny General Hospital[1-3]	Pittsburgh	P. B. Steele J. A. Heberling	ACF	1,294	10,466	6	..	..	1	30	150
Children's Hospital[1-3]	Pittsburgh	J. S. Donaldson	C	513	4,110	2	..	..	1	6,30	58.33
Presbyterian Hospital[1]	Pittsburgh	J. S. Donaldson	AF	459	.....	..	..	2	2	30	50
St. Francis *Hospital*[1-3]	Pittsburgh	C. C. Yount	A	326	893	1	1	..	1	30	150
Robert Packer Hospital[1-3]	Sayre, Pa.	D. R. Baker	ACF	855	7,261	7	4	1	3	..	100
Rhode Island Hospital[1-3]	Providence, R. I.	H. McCusker	ACF	1,613	9,611	26	6	1	4	..	60
Roper Hospital[1-3]	Charleston, S. C.	F. A. Hoshall	AFC	715	3,192	6	..	1	3	45	83
Columbia Hospital[1-3]	Columbia, S. C.	W. A. Boyd	ACF	1,675	.....	17	4	1	3	..	150
Greenville General Hospital[1-3]	Greenville, S.C.	C. H. Haynesworth F. H. Stelling B. Thomas	AF	695	1,643	14	8	1	1	19	100
Shriners Hospitals for Crippled Children[1-3]	Greenville, S. C.	F. H. Stelling	C	404	2,997	1	..	..	3	19,48	100
St. Mary's Memorial Hospital[1-3]	Knoxville, Tenn.	T. Bagwell	ACF	1,020	27	..	..	1	3	..	300
Campbell Clinic Hospital[3]	Memphis, Tenn.	J. S. Speed	ACF	2,211	19,733	5	..	4	13	..	...
Baylor University Hospital[1-3]	Dallas, Texas	F. Butte	A	1,990	654	3	1	2	6	32	75
Parkland Hospital[1]	Dallas, Texas	P. M. Girard	F	652	3,096	11	1	2	6	32	50
Texas Scottish Rite Hospital for Crippled Children[3]	Dallas, Texas	B. Carrell	C	601	4,807	..	..	1	3	32,47	75
Hermann Hospital[1-3]	Houston, Texas	E. T. Smith	ACF	1,514	3,511	6	1	1	4	..	100
Jefferson Davis Hospital[1]	Houston, Texas	F. A. Bloom	ACF	675	7,063	11	3	1	2	49	50
Salt Lake County General Hospital[1-3]	Salt Lake City	P. B. Price	F	146	1,523	12	3	..	1	34	...
Shriners Hospital for Crippled Children	Salt Lake City	....	C	...	.....	..	..	..	..	34	...
University of Virginia Hospital[1-3]	Charlottesville, Va.	J. H. Allan	ACF	769	4,816	11	4	1	5	14	50
Crippled Children's Hospital[1-3]	Richmond, Va.	W. T. Graham H. P. Mauck	C	238	400	..	..	2	2	35	200
Medical College of Virginia—Hospital Division[1-3]	Richmond, Va.	H. P. Mauck	AF	1,355	4,522	27	8	3	6	35	50
Children's Orthopedic Hospital[1-3]	Seattle, Wash.	J. F. LeCocq	C	461	5,968	1	1	..	2	20	...
King County Hospital Unit No. 1 (Harborview)[1-3]	Seattle, Wash.	R. D. Ray	AF	870	5,235	35	18	..	2	36	130
Providence Hospital[1-3]	Seattle, Wash.	H. T. Buckner	A	1,868	178	..	..	1	1	36	200
Shriners Hospital for Crippled Children[1-3]	Spokane, Wash.	N. R. Brown	C	211	954	..	..	..	1	54	...
Charleston General Hospital[1]	Charleston, W. Va.	G. Miyakawa	AF	674	6,659	8	1	..	2	78	100
St. Mary's Hospital[1-3]	Huntington, W. Va.	F. A. Scott	AF	1,231	762	9	5	1	1	78	125
Morris Memorial Hospital for Crippled Children[1-3]	Milton, W. Va.	H. M. Hills	C	709	78	..	..	..	2	78	800
University Hospitals[1-3]	Madison, Wis.	R. E. Burns	ACF	1,502	5,677	24	14	2	6	..	50
Columbia Hospital[1-3]	Milwaukee	H. C. Schumm	AF	802	.....	7	3	1	3	37	125
Milwaukee Children's Hospital[1-3]	Milwaukee	W. P. Blount	C	412	1,939	1	1	..	2	37,40	...
Shriners Hospital for Crippled Children[1-3]	*Honolulu, T. H.*	J. W. White	C	171	4,294	..	..	1	1	50	100

Numerical and other references will be found on pages 373 and 374.

15. ORTHOPEDIC SURGERY—Continued

The following services have been approved by the Council and the American Board of Orthopedic Surgery as offering acceptable training in adult orthopedics and fractures. Training in the basic sciences is given as an integral part of these services or as a separate course. Services collaborating in an integrated plan of training are designated by a program number, a list of which is found on page 338.

Residents completing their training in these hospitals are eligible for limited certification by the American Board of Orthopedic Surgery, not to include children's orthopedic surgery.

Hospitals, 37; Assistant Residencies and Residencies, 103

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Program Identification	Beginning Stipend (Month)
FEDERAL											
UNITED STATES ARMY											
Letterman Army Hospital [66]	San Francisco	E. A. Bray	AF	2,604	2,905	1	1	3	9	..	...
Fitzsimons Army Hospital [66]	Denver, Colo.	L. W. Taylor	AF	1,217	4,674	3	3	2	5	..	...
UNITED STATES AIR FORCE											
U. S. Air Force Base Hospital [1]	San Antonio, Texas	H. E. Block	AF	1,137	14,150	8	2	2	2	..	...
UNITED STATES NAVY											
U. S. Naval Hospital [1]	Oakland, Calif.	F. P. Kreuz	AF	2,119	8,675	2	1	..	3	..	...
U. S. Naval Hospital [1]	Bethesda, Md.	C. R. Carr	AF	1,473	11,042	9	7	..	4	..	...
U. S. Naval Hospital [1]	Chelsea, Mass.	C. F. Morrison	AF	783	3,739	..	..	..	2	..	...
U. S. Naval Hospital [1]	St. Albans, N. Y.	H. A. Markowitz	AF	1,277	.....	1	..	..	2	..	...
U. S. Naval Hospital [1]	Philadelphia	H. E. Wiggins	AF	1,395	3,402	7	2	..	2	..	...
U. S. Naval Hospital [1]	Portsmouth, Va.	J. S. Thiemeyer	AF	2,672	9,048	5	4	..	1	..	...
UNITED STATES PUBLIC HEALTH SERVICE											
U. S. Public Health Service Hospital [1-3]	Staten Island, N. Y.	S. J. Curran	AF	1,706	11,589	8	1	..	..	..	...
VETERANS ADMINISTRATION											
Veterans Admin. Hospital [1-3]	Los Angeles, Calif.	R. Mazet, Jr.	AF	982	2,437	10	8	3	8	..	...
Veterans Admin. Hospital [1-3]	Denver, Colo.	M. E. Gibbens	AF	617	.....	..	..	1	2	..	...
Veterans Admin. Hospital	Boston (Jamaica Plain)	J. S. Barr	AF	966	2,290	3	2	2	6	13	...
Veterans Admin. Hospital [1-3]	Jefferson Bks., Mo.	O. Hampton, Jr.	AF	992	.....	8	5	1	3	..	...
Veterans Admin. Hospital [1-3]	Lincoln, Nebr.	J. E. M. Thomson	AF	433	520	..	..	1	3	..	...
Veterans Admin. Hospital [1]	McKinney, Texas	V. M. Bryant	AF	1,054	.....	2	2	2	5	..	...
NONFEDERAL											
Lloyd Noland Hospital [1-3]		C. L. Yelton	AF	684	10,681	3	1	1	2	..	225
White Memorial Hospital		T. G. Reynolds	AF	911	5,140	2	1	1	3	..	146.25
San Diego County Genera		F. E. West	AF	1,212	1,668	1	33	1	3	..	150
St. Joseph's Hospital [1-3]		R. Soto-Hall	AF	930	1,109	7	7	1	3	..	150
St. Mary's Hospital [1-2]		J. J. Loutzenheiser	AF	1,208	584	15	4	1	2	..	150
St. Luke's Hospital [1-3]	Chicago	F. A. Chandler	AF	748	1,132	8	4	1	2	..	50
Methodist Hospital [1-2]	Indianapolis	H. E. Kitterman	AF	1,748	.....	32	11	1	2	..	...
Jewish Hospital [1-3]		J. Milgram	AF	624	5,917	10	..	1	2	..	75
Methodist Hospital		H. P. Lange, Sr.	AF	586	2,[illegible]95	3	..	1	1	..	75
Edward J. Meyer M		P. Blanco	AF	87	1,161	2	2	1	2	..	179
Queens General Hospital [1-3]	Jamaica, N. Y.	F. C. Courten	AF	186	3,614	16	2	1	3	..	93.33
Flower and Fifth Avenue Hospitals [1-3]	New York City	M. J. Wilson	AF	356	402	4	..	1	2	67	...
Lenox Hill Hospital [1-3]	New York City	W. Galland A. Wiesenthal	AF	514	1,763	8	1	1	1	..	180
Metropolitan Hospital [1-3]	New York City	M. J. Wilson	AF	705	3,895	41	5	2	3	16	93
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	R. A. Moore	AF	432	1,651	5	4	1	1	2	41.66
St. Luke's Hospital [1-3]	Cleveland	W. H. McGaw	AF	985	1,783	4	1	1	3	..	120
Youngstown Hospital	Youngstown, Ohio	R. R. Morrall	AF	900	1,500	16	6	1	..	..	125
Hahnemann Medical College and Hospital [1-3]	Philadelphia	E. O. Geckeler	AF	959	6,226	11	1	2	4	..	50
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	G. W. N. Eggers	AF	510	4,575	7	4	1	5	..	...
St. Joseph's Infirmary [3]	Houston, Texas	F. F. Parrish	AF	618	1,488	4	1	1	1	..	150
Scott and White Memorial Hospitals [1-3]	Temple, Texas	R. A. Murray	AF	590	4,011	..	..	1	1	..	250

The following services are approved by the Council and the American Board of Orthopedic Surgery as offering acceptable training in one or more but not all categories of orthopedic surgery. Hospitals included in this list are urged to develop a full three year program, either independently or in collaboration with other institutions in order to assure applicants for appointment of an opportunity for completing their training with progressive graded responsibility.

Hospitals, 30; Assistant Residencies and Residencies, 56

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Program Identification	Beginning Stipend (Month)
FEDERAL											
UNITED STATES NAVY											
U. S. Naval Hospital	San Diego, Calif.	R. A. Freyling	AF	8,186	6,676	2	..	..	2	..	...
VETERANS ADMINISTRATION											
Veterans Admin. Hospital [1-3]	Dearborn, Mich.	H. E. Pedersen	A	801	1,399	10	6	1	1	..	...
NONFEDERAL											
Highland-Alameda County Hospital [1-3]	Oakland, Calif.	L. Barnard	AF	795	4,236	42	13	1	2	..	...
Santa Clara County Hospital [1]	San Jose, Calif.	R. W. Meyer	AF	154	2,812	3	1	1	1	..	260
Sonoma County Hospital [1-3]	Santa Rosa, Calif.	C. Anderson	A	164	612	12	11	1	1	..	350
Hope Haven Hospital [3]	Jacksonville, Fla.	F. L. Fort	C	486	1,693	..	..	..	1	..	100
Jackson Memorial Hospital [1]	Miami, Fla.	E. C. Cullipher	ACF	1,658	4,497	29	10	2	6	..	75
Scottish Rite Hospital for Crippled Children	Decatur, Ga.	J. H. Kite	C	311	3,110	..	..	1	1	..	200
Emory University Hospital [1-3]	Emory University, Ga.	R. P. Kelly	C	560	.....	..	..	3	3	..	170
Alexian Brothers Hospital [3]	Chicago	C. N. Pease	F	677	123	6	..	1	1	..	125
Illinois Masonic Hospital [1-3]	Chicago	W. R. Fischer	AF	1,136	6,345	17	3	2	2	..	85
Michael Reese Hospital [1-3]	Chicago	P. Lewin	AC	1,094	3,292	6	4	1	3	..	50
St. Francis Hospital [1-3]	Peoria, Ill.	H. E. Cooper	ACF	1,067	3,274	2	..	1	2	..	...
Iowa Methodist Hospital [1-3]	Des Moines, Iowa	D. N. Gibson	AF	536	.....	10	2	1	1	..	100
Mercy Hospital [1-3]	Iowa City, Iowa	A. Steindler	A	569	3,188	2	1	2	4	..	150
St. Francis Hospital [1-3]	Wichita, Kan.	H. S. Bowman	A	1,484	.....	26	9	1	1	..	...
Shriners Hospital for Crippled Children [1]	Shreveport, La.	G. D. Caldwell	C	175	918	..	..	..	1	..	100
Massachusetts Memorial Hospitals [1-3]	Boston, Mass.	K. Christophe	.....	227	22,839	7	2	1	1	..	...
St. Louis City Hospital [1-3]	St. Louis	E. Holscher I. Horwitz	F	1,005	4,854	68	1	1	2	..	137.75
Shriners Hospital for Crippled Children [3]	St. Louis	C. H. Crego	C	400	2,364	..	..	2	2	..	200
Nebraska Orthopedic Hospital [1]	Lincoln, Neb.	H. W. Orr	C	999	2,789	2	..	2	2	..	150
Hospital for Crippled Children	Newark, N. J.	H. H. Kessler T. Nicola	AC	818	.....	8	..	..	2	..	150
New Jer [3]	Orange, N. J.	H. W. Smith	AC	790	15,213	2	..	1	2	80	120
Orange	Orange, N. J.	H. Briggs	F	529	1,145	12	..	1	1	80	120
Orthopa [1-3]	Trenton, N. J.	R. B. Ernest	A	572	7,870	7	..	1	1	..	200
Bingham	Binghamton, N. Y.	A. R. Carpenter	AC	427	624	..	..	2	4	..	150
Mount S	Cleveland	R. S. Reich	AF	1,736	1,378	15	3	1	2	..	...
Reading Hospital [1-3]	Reading, Pa.	E. J. Morrissey	AF	689	636	19	7	1	1	..	125
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn.	R. C. Robertson	AF	1,448	979	26	9	2	3	17	150
Primary Children's Hospital	Salt Lake City	....	C	...	.....	..	..	..	..	..	...

Numerical and other references will be found on pages 373 and 374.

ORTHOPEDIC SURGERY—PROGRAM IDENTIFICATION

Program Number	Hospital	Location
1.	Veterans Admin. Hospital	Memphis
	Arkansas Children's Home and Hospital	Little Rock, Ark.
2.	Veterans Admin. Hospital	San Francisco
	Samuel Merritt Hospital	Oakland
	Children's Hospital	San Francisco
	Franklin Hospital	San Francisco
	San Francisco	San Francisco
	Shriners Hospit	San Francisco
	University of C	San Francisco
3.	Veterans Admin	San Francisco
	San Francisco	San Francisco
	Stanford Unive	San Francisco
4.	Children's Hospi	Denver
	Colorado Gener	Denver
	Denver General	Denver
5.	Hartford Hospita	Hartford, Conn.
	Grace-New Haven	New Haven, Conn.
	Newington Home Children	Newington, Conn.
6.	George F. Geisinger Memorial Hospital	Danville, Pa.
	Children's Hospital	Pittsburgh
7.	American Legion Hospital for Crippled Children	St. Petersburg, Fla.
	Children's	Chicago
	Passavant	Chicago
	St. Elizabeth Hospital	Chicago
	Wesley Memorial Hospital	*Chicago*
	Evanston Hospital	Evanston, Ill.
	St. Francis	Evanston, Ill.
	West Subur	Oak Park, Ill.
	University	Columbia, Mo.
	Carrie Tingley Hospital for Crippled Children	Truth or Consequences, N. M.
8.	Veterans Admin.	Indianapolis
	Indianapolis Gene	Indianapolis
	Indiana University	*Indianapolis*
	St. Vincent's Hospital	Indianapolis
9.	Veterans Admin.	*Louisville*
	Kosair Crippled	Louisville
	Louisville General	Louisville
10.	Veterans Admin. Hospital	New Orleans
	Charity Hospital of Louisiana Tulane *University* Unit	New Orleans
	Touro Infirmary	New Orleans
11.	Children's Hospital	Boston
	Massachusetts General *Hospital*	Boston
12.	Children's Hospital	Detroit
	City of Detroit Receiving Hospital	Detroit
	Harper Hospital	Detroit
13.	Veterans Adm	Boston
	Boston City	Boston
	Massachusett	Canton, Mass.
14.	Rehabilitation Hospital	West Haverstraw, N. Y.
	University of Virginia Hospital	Charlottesville, Va.
15.	Children's Hospital	Akron, Ohio
	City Hospital	Akron, Ohio
16.	Veterans Admin.	Minneapolis
	Shriners Hospital	Minneapolis
	University of Min	Minneapolis
	Gillette State Hos	St. Paul, Minn.
17.	Children's Hospital	Cincinnati
	Cincinnati General *Hospital*	Cincinnati
	Jewish Hospital	Cincinnati
18.	Veterans Admin.	Wadsworth, Kans.
	Children's Mercy	*Kansas City*, Mo.
	Kansas City Gene	Kansas City, Mo.
	St. Luke's Hospital	Kansas City, Mo.
19.	Alfred I. du Pont Institute of the Nemours Foundation	Wilmington, Del.
	Duke Hospital	Durham, N. C.
	North Carolina	Gastonia, N. C.
	Greenville Gene	Greenville, S. C.
	Shriners Hospit	Greenville, S. C.
20.	Alfred I. du Pont *Institute of the* Nemours Foundation	Wilmington, Del.
	Hospital of the University of Pennsylvania	Philadelphia
21.	State Hospital for Crippled Children	*Elizabethtown*, Pa.
	Jefferson Medical College Hospital	Philadelphia
22.	Veterans Admin. Hospital	New York City
	Hospital for Special Surgery	New York City
23.	Children's Hospital	*Philadelphia*
	Graduate Hospital of the University of Pennsylvania	Philadelphia
	Pennsylvania Hospital	Philadelphia
	Philadelphia General *Hospital*	Philadelphia
24.	Veterans Admin. *Hospital*	Buffalo
	Buffalo General *Hospital*	Buffalo
	Children's Hospital	Buffalo
25.	Children's	Columbus, Ohio
	Mount Car	Columbus, Ohio
	University	
	University	Columbus, Ohio
	White Cro	Columbus, Ohio
26.	House of St. Giles the Cripple	*Brooklyn*
	New York Polyclinic Medical School and *Hospital*	*New York City*
	St. Vincent's Hospital	Staten Island, N. Y.
	Seaview Hospital	Staten Island, N. Y.
27.	Veterans Admin.	*Cleveland*
	Elyria Memorial	Elyria, Ohio
28.	Emanuel Hospital	Portland, Ore.
	Shriners Hospital *for* Crippled Children	Portland, Ore.
	University of Oregon Medical School *Hospitals and Clinics*	Portland, Ore.
29.	Shriners Hospital *for* Crippled Children	Philadelphia
	Temple University Hospital	Philadelphia
30.	Allegheny General Hospital	Pittsburgh
	Children's Hospital	Pittsburgh
	Presbyterian Hospital	Pittsburgh
	St. Francis Hospital	Pittsburgh
31.	Rochester General Hospital	Rochester, N. Y.
	Strong Memorial-Rochester Municipal *Hospitals*	*Rochester*, N. Y.
32.	Baylor University Hospital	Dallas, Texas
	Parkland Hospital	Dallas, Texas
	Texas Scottish Rite Hospital for Crippled Children	Dallas, Texas
33.	West Suburban Hospital	Oak, Park, Ill.
	Shriners Hospital for Crippled Children	Springfield, Mass.
34.	*Veterans Admin.*	*Salt Lake City*
	Salt Lake County	Salt Lake City
	Shriners *Hospital*	Salt Lake City
35.	Veterans Admin.	Richmond, Va.
	Crippled Children	Richmond, Va.
	Medical College of	*Richmond, Va.*
36.	Children's Orthopedic Hospital	Seattle
	King County Hospital, *Unit No. 1* (Harborview).	Seattle
	Providence Hospital	Seattle
37.	Columbia Hospital	Milwaukee
	Milwaukee Children's Hospital	Milwaukee
38.	Meadowbrook Hospital	Hempstead, N. Y.
	Nassau Hospital	Mineola, N. Y.
	St. Charles Hospital for Crippled Children	Port *Jefferson*, N. Y.
39.	*Long* Island College *Hospital*	*Brooklyn*
	St. Charles Hospital Orthopedic Clinic	Brooklyn
40.	*Veterans* Admin. Hospital	*Milwaukee*
	Milwaukee Children's *Hospital*	*Milwaukee*
41.	House of St. *Giles the Cripple*	Brooklyn
	St. Luke's Hospital	*New York City*
42.	Albany Hospital	Albany, N. Y.
	Ellis Hospital and Eastern New York Orthopedic Hospital School	Schenectady, N. Y.
43.	Hospital of St. Raphael	New Haven, Conn.
	St. Charles Hospital *for Crippled* Children	Port Jefferson, N. Y.
45.	*Veterans Admin.* Hospital	Columbia, S. C.
	Roper Hospital	Charleston, S. C.
46.	Veterans Admin. Hospital	Fort Howard, Md.
	Children's *Hospital School*	Baltimore
47.	Veterans Admin. Hospital	Dallas, Texas
	Texas Scottish Rite Hospital for *Crippled* Children	Dallas, Texas
48.	Charlotte Memorial Hospital	Charlotte, N. C.
	Shriners Hospital for Crippled Children	Greenville, S. C.
49.	Veterans Admin. *Hospital*	Houston, Tex.
	Jefferson Davis Hospital	Houston, Tex.
50.	Veterans Admin.	Hines, Ill.
	Shriners Hospital	Chicago
	Shriners Hospital	Honolulu, T. H.
51.	*Bellevue Hospital Center, Division III*—New York University Medical College	New York City
	Rehabilitation Hospital	West Haverstraw, N. Y.
52.	Veterans Admin. Hospital	Brooklyn
	St. Charles Hospital Orthopedic Clinic	Brooklyn
53.	Veterans A	Oklahoma City
	Bone and	Oklahoma City
	St. Anthon	*Oklahoma City*
	University	Oklahoma City
54.	Veterans Admin. Hospital	Portland, Ore.
	Shriners Hospital for Crippled Children	Spokane, Wash.
55.	Veterans Admin. Hospital	Des Moines, Ia.
	University Hospitals	Iowa City
56.	Ochsner Foundation Hospital	New Orleans
	State Hospital for Crippled Children	Elizabethtown, *Pa.*
57.	Children's Hospital School	Baltimore
	Johns Hopkins Hospital	Baltimore
58.		Baltimore
		Baltimore
		Baltimore
59.	Good Samaritan Hospital	Lexington, Ky.
	St. Joseph's Hospital	Lexington, Ky.
60.	Veterans Admin. Hospital	Long Beach, Calif.
	Children's Hospital	Los Angeles, Calif.
66.	*Boston City* Hospital	Boston
	Lahey Clinic	Boston
	Massachusetts	Canton, Mass.
	Shriners Hospi	Springfield, Mass.
67.	*Flower* and Fifth Avenue Hospital	New York City
	Metropolitan Hospital	New York City
78.	Charleston *General* Hospital	*Charleston*, W. Va.
	St. Mary's Hospital	Huntington, W. Va.
	Morris Memorial Hospital	*Milton*, W. Va.
80.	*New Jersey* Orthopaedic Hospital	Orange, N. J.
	Orange Memorial Hospital	Orange, N. J.

16. OTOLARYNGOLOGY

The following services have been approved for three years of training by the Council and the American Board of Otolaryngology.
Hospitals, 108; Assistant Residencies and Residencies, 380

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital[1-66]	San Francisco	B. G. McKibben	1,407	7,861	1	3	...
Army Medical Center[1-66-67]	Washington, D. C.	V. J. Erkenbeck	1,775	6,871	2	6	...
Brooke Army Medical Center[66-280]	San Antonio, Texas	H. S. Murphey	732	12,129	2	6	...
UNITED STATES NAVY							
	Oakland, Calif.	C. D. Riggs	1,112	4,525	..	1	...
	San Diego	S. H. Oliver	1,978	13,273	..	1	...
	Bethesda, Md.	S. J. Ryan	1,115	.....	..	2	...
	Philadelphia	F. Harbert	1,174	16,029	..	2	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	S. Kaplan	353	1,818	2	2	...
Veterans Admin. Hospital[1-3]	Los Angeles	O. S. Mumma	715	5,691	1	3	...
Veterans Admin. Hospital[1]	San Francisco	W. P. Work	355	1,830	1	3	...
Veterans Admin. Hospital[1-8]	Washington, D. C.	J. G. Lee	180	1,188	1	1	...
Veterans Admin. Hospital[1-72-76]	Atlanta, Ga.	L. A. Brown	299	.....	..	..	...
Veterans Admin. Hospital[1]	Hines, Ill.	F. L. Lederer	623	421	..	4	...
Veterans Admin. Hospital[1-3]	Wadsworth, Kans.	N. E. Lacy	144	210	1	1	...
Veterans Admin. Hospital[1-3]	Louisville, Ky.	H. Oppenheim	246	174	1	1	...
Veterans Admin. Hospital[1-3]	Boston (Jamaica Plain), Mass.	E. H. Tomb	460	3,022	1	3	...
Veterans Admin. Hospital[1-3]	Minneapolis	H. V. Hanson	247	148	..	4	...
Veterans Admin. Hospital[1-3]	Jefferson Bks., Mo.	E. H. Lyman	9,740	.....	1	3	...
Veterans Admin. Hospital[1-3]	Brooklyn	G. G. Boyd	216	102	1	3	...
Veterans Admin. Hospital[1-3]	New York City (Bronx)	D. H. Jones	579	3,330	2	6	...
Veterans Admin. Hospital[1]	Aspinwall, Pa.	K. H. Hinderer	293	.....	1	3	...
Veterans Admin. Hospital[1-3-264]	Memphis, Tenn.	T. A. Maguda	690	385	1	2	...
Veterans Admin. Hospital[1-3-270-271-279]	Dallas, Texas	J. W. Morris	543	2,052	1	2	...
Veterans Admin. Hospital[1-3]	Houston, Texas	H. H. Harris	313	421	1	2	...
Veterans Admin. Hospital[1]	Milwaukee	G. D. Straus	1,457	2,100	2	2	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Los Angeles County Hosptial[1]	Los Angeles	A. H. Miller	2,007	18,331	..	4	190
Los Angeles Eye and Ear Hospital[1-3]	Los Angeles	A. H. Miller	1,935	4,109	2	4	150
White Memorial Hospital[1-3]	Los Angeles	H. J. Hara	970	1,806	3	1	146.25
Stanford University Hospitals[1-3]	San Francisco	R. C. McNaught	629	7,275	..	2	50
University of California Hospital[1-3-36-40-41]	San Francisco	L. F. Morrison	487	6,008	..	2	87
University of Colorado Medical Center		....	.....	.....	1	2	150
Colorado General Hospital[1-3-22]	Denver, Colo.	H. L. Hickey	256	4,159	..	..	...
Denver General Hospital[1-3-22]	Denver, Colo.	H. L. Hickey	194	39	..	..	...
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	J. Kirchner	800	4,446	1	2	50
Episcopal Eye, Ear and Throat Hospital[3]	Washington, D. C.	D. B. Moffett	4,910	18,168	2	6	150
Gallinger Municipal Hospital[1-3]	Washington, D. C.	S. Burtoff	385	2,875	1	2	...
Tampa Municipal Hospital[1-3]	Tampa, Fla.	J. B. Farrior	748	1,058	1	1	125
Grady Memorial Hospital[1-3]	Atlanta, Ga.	W. C. Warren	35	.....	1	3	20
Cook County Hospital[1-3]	Chicago	S. J. Pearlman	1,176	23,984	5	5	50
Illinois Eye and Ear Infirmary[1-3]	Chicago	F. L. Lederer	912	32,597	6	18	60
Presbyterian Hospital[1-3]	Chicago	S. A. Friedberg	693	2,682	1	1	125
University of Chicago Clinics[1-3]	Chicago	J. R. Lindsay	421	11,053	1	3	175
University of Illinois Research and Educational Hosps.[1-3-86]	Chicago	F. L. Lederer	459	10,855	1	2	60
Wesley Memorial Hospital[1-3-85]	Chicago	G. E. Shambaugh	946	2,918	1	3	50
Indianapolis General Hospital[1-8]	Indianapolis	D. Brown	595	4,768	1	2	150
Indiana University Medical Center[1]	Indianapolis	M. W. Manion	419	2,741	1	3	150
University Hospitals[1-3]	Iowa City, Iowa	D. M. Lierle	2,011	4,261	1	10	75
University of Kansas Medical Center[1-3]	Kansas City, Kans.	G. O. Proud	653	4,780	..	3	125
University of Louisville Hospitals[1-3]	Louisville, Ky.	W. Wolfe	43	1,937	2	2	150
Charity Hospital of Louisiana							
Louisiana State University Unit[1-8]	New Orleans	G. J. Taquino	851	7,650	1	3	40
Tulane University Unit[1-3]	New Orleans	F. E. Lejeune	728	7,813	1	3	40
Eye, Ear, Nose and Throat Hospital[1-3]	New Orleans	W. Wagner	4,218	14,551	5	6	35
Baltimore Eye, Ear and Throat Charity Hospital[1-3]	Baltimore	F. Kyper	3,885	10,478	1	3	...
Johns Hopkins Hospital[1-3]	Baltimore	J. E. Bordley	1,246	8,657	..	5	...
University Hospital[1-3]	Baltimore	T. R. O'Rourk	457	2,122	1	2	50
Boston City Hospital[1-3]	Boston	C. R. Mills	2,817	15,820	3	6	112
Massachusetts Eye and Ear Infirmary[1-3-138]	Boston	L. A. Schall	2,332	18,148	9	9	41
University Hospital[1-3]	Ann Arbor, Mich.	A. C. Furstenberg	655	5,359	2	8	131.16
City of Detroit Receiving Hospital[1-3]	Detroit	J. E. Croushore	316	5,508	1	2	254
Harper Hospital[1-3]	Detroit	W. Warren	4,028	2,520	1	3	225
Henry Ford Hospital[1-8]	Detroit	J. L. Dill	996	15,986	1	3	225
University of Minnesota Hospitals[1-3]	Minneapolis	L. R. Boies	252	3,909	2	4	150
Mayo Foundation[1-8]	Rochester, Minn.	H. L. Williams	1,449	22,277	3	9	150
Homer G. Phillips Hospital[1-3]	St. Louis	A. J. Cone	355	2,500	2	4	190
Washington University Hospitals							
Barnes Hospital[1-3-158-162]	St. Louis	T. Walsh	2,935	13,099	2	9	50
McMillan Hospital[1-3]	St. Louis	....	.....	.....	..	..	...
St. Mary's Group of Hospitals[1-3]	St. Louis	B. J. McMahon	565	3,259	1	3	65
Medical Center—Jersey City Hospital[1-3]	Jersey City, N. J.	M. G. Borrone	757	5,391	1	3	66.75
Albany Hospital[1-3]	Albany, N. Y.	B. M. Volk	643	789	1	2	135
Brooklyn Eye and Ear Hospital[1-8]	Brooklyn	J. P. Baker	5,341	40,893	3	6	...
Kings County Hospital[1-3]	Brooklyn	J. Gilbert E. Sunde	1,288	7,759	2	4	98
Long Island College Hospital[1-3]	Brooklyn	C. R. Weeth	822	3,873	1	3	75
Buffalo General Hospital[1-3-188]	Buffalo	H. E. Bozer	877	1,537	..	2	125
Bellevue Hospital Center, Division IV—							
New York University College of Medicine[1-3-208]	New York City	J. Daly	2,245	22,768	4	10	98
Manhattan Eye, Ear and Throat Hospital[1-3]	New York City	W. B. Allan	7,467	47,338	4	8	...
Mount Sinai Hospital[1-3]	New York City	R. Kramer	663	6,719	1	2	...
New York City Hospital[1-3]	New York City	O. C. Risch	343	5,558	1	3	150
New York Eye & Ear Infirmary[1-3]	New York City	J. S. Hanley	2,839	36,696	4	12	...
New York Hospital[1-3]	New York City	J. A. Moore	2,016	10,683	2	4	25
New York Polyclinic Medical School and Hosp.[1-3]	New York City	W. W. Morrison R. Almour	1,147	17,169	1	2	...
Presbyterian Hospital[1-8]	New York City	E. P. Fowler	1,751	18,420	1	8	208.33

Numerical and other references will be found on pages 373 and 374.

16. OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered ^{8}	Total Residencies Offered ^{8}	Beginning Stipend (Month)
Roosevelt Hospital $^{1-3}$	New York City	R. C. Grove	631	4,992	1	3	116
St. Lu	New York City	V. O. McCuaig	800	8,329	1	3	60
Strong	Rochester, N. Y.	C. A. Heatly	1,066	2,860	..	2	41.66
State	Syracuse, N. Y.	G. D. Hoople	.....	.....	..	1	191.66
Duke	Durham, N. C.	W. W. Eagle	523	2,717	3	8	25
McPherson Hospital $^{1-3-227-231}$	Durham, N. C.	S. D. McPherson, Sr.	1,329	16,680	1	3	100
North Carolina Baptist Hospital $^{1-3}$	Winston-Salem, N. C.	J. A. Harrill	332	1,391	1	3	41.66
Cincinnati General Hospital $^{1-3}$	Cincinnati	H. M. Goodyear	547	4,487	1	2	...
Cleveland Clinic Hospital $^{1-3}$	Cleveland	H. E. Harris	659	13,318	2	6	175
St. Luke's Hospital $^{1-3}$	Cleveland	T. W. Thoburn	3,199	1,335	1	3	120
University Hospitals							
University Hospital $^{1-3-238}$	Columbus, Ohio	E. W. Harris	318	1,986	..	5	150
University Hospitals $^{1-3}$	Oklahoma City	O. A. Watson	240	1,668	1	1	50
University of Oregon Medical School Hospitals and Clinics $^{1-253}$	Portland, Ore.	G. L. Boyden	538	3,834	1	3	85
George G. Geisinger Memorial Hospital $^{1-3}$	Danville, Pa.	F. W. Davidson	944	9,493	..	3	100
Graduate Hospital of the University of Pa. $^{1-3-255}$	Philadelphia	E. S. Campbell	1,530	2,355	1	2	200
Hospital of the University of Pennsylvania $^{1-3}$	Philadelphia	H. Schenck	1,428	5,595	..	8	...
Jefferson Medical College Hospital $^{1-3}$	Philadelphia	L. H. Clerf F. Harbert	1,729	10,922	3	3	25
Philadelphia General Hospital $^{1-3}$	Philadelphia	L. K. Elfman	142	3,888	1	1	112.24
Temple University Hospital $^{1-3-250}$	Philadelphia	M. S. Ersner	1,657	2,594	1	1	...
Pittsburgh Medical Center $^{1-3-261}$	Pittsburgh	T. B. McCullough K. M. Day	4,428	4,648	2	4	125
Rhode Island Hospital $^{1-3}$	Providence, R. I.	F. B. Sargent	1,861	4,088	1	1	60
City of Memphis Hospitals $^{1-3}$	Memphis, Tenn.	C. D. Blassingame	295	.....	1	2	35
University of Texas Medical Branch Hospitals $^{1-3}$	Galveston, Texas	J. M. Robison	337	7,819	1	3	...
Jefferson Davis Hospital ^{1}	Houston, Texas	H. H. Harris	224	7,729	..	2	50
University of Virginia Hospital $^{1-3}$	Charlottesville, Va.	G. S. Fitz-Hugh	985	5,776	1	3	50
Medical College of Virginia, Hospital Division $^{1-3-202}$	Richmond, Va.	P. N. Pastore	1,192	3,845	1	3	...
Gill Memorial Eye, Ear and Throat Hospital $^{1-3}$	Roanoke, Va.	E. G. Gill	1,623	12,045	..	..	300
University Hospitals $^{1-3}$	Madison, Wis.	W. M. Nesbit	682	.....	1	2	50
Milwaukee County Hospital $^{1-3}$	Milwaukee	F. Bechmann	285	2,385	1	1	208.92

The following hospitals approved by the Council and the American Board of Otolaryngology offer training in otolaryngology of less than three years' duration, which is integrated with or contributory to a fully approved program.

Hospitals, 7; Assistant Residencies and Residencies, 7

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered ^{8}	Total Residencies Offered ^{8}	Beginning Stipend (Month)
FEDERAL							
Veterans Admin. Hospital $^{1-3}$	Portland, Ore.	G. L. Boyden	151	588	..	1	...
NONFEDERAL							
Children's Hospital $^{1-3}$	San Francisco	R. C. Martin	742	1,162	1	1	125
San Francisco Hospital	San Francisco						
Stanford University Service ^{1}		S. Von Christierson	204	.....	1	1	175
University of California Service ^{1}		L. F. Morrison	208	.....	..	1	175
Minneapolis General Hospital $^{1-3}$	Minneapolis	R. E. Priest	130	2,141	..	1	169
Ancker Hospital $^{1-3}$	St. Paul, Minn.	L. T. Simons	247	2,252	..	1	150
St. Louis Children's Hospital	St. Louis		...	.....	..	..	...
St. Louis City Hospital $^{1-3}$	St. Louis	E. Lyman	161	4,867	1	1	137.75

17. PATHOLOGY

The following services have been approved by the Council and the American Board of Pathology. Services which have been evaluated on the basis of training in the two categories, pathologic anatomy and clinical pathology, are designated as follows: a—pathologic anatomy only; c—clinical pathology only; p—pathologic anatomy and clinical pathology. Training in hospitals which are not so designated in this list will be evaluated by the Board on an individual basis at the time of application for certification.

Hospitals, 494; Assistant Residencies and Residencies, 1,639

FEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered ^{8}	Total Residencies Offered ^{8}	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY										
Letterman Army Hospital ^{66}	San Francisco	K. F. Earnest	149	8,283	8,281	442,281	2	8	4^p	...
Fitzsimons Army Hospital ^{66}	Denver, Colo.	C. Farinacci	269	8,296	8,296	665,431	2	8	4^p	...
Armed Forces Institute of Pathology $^{1-66}$	Washington, D. C.	H. F. Smetana	16,823	48,100	48,100	....	..	20	1^a	...
Army Medical Center $^{1-66-67}$	Washington, D. C.	J. M. Blumberg	279	7,031	7,012	875,057	2	8	4^p	...
Brooke Army Medical Center $^{66-280}$	San Antonio, Texas	C. J. Lind	436	6,128	6,128	766,144	2	6	4^p	...
UNITED STATES NAVY										
U. S. Naval Hospital ^{1}	Oakland, Calif.	H. V. O'Connell	207	5,790	5,750	322,787	..	2	4^p	...
U. S. Naval Hospital	San Diego, Calif.		13,311	18,311	760,291	....	..	2	4^a	...
U. S. Naval Hospital ^{1}	Bethesda, Md.	E. E. Martens	208	6,576	6,576	318,730	..	3	4^p	...
U. S. Naval Hospital ^{1}	St. Albans, N. Y.	W. O. Umiker	132	7,253	6,724	249,366	..	2	3^a	...
U. S. Naval Hospital ^{1}	Philadelphia	R. H. Walker	194	3,617	3,605	335,788	..	2	4^p	...
UNITED STATES PUBLIC HEALTH SERVICE										
U. S. Public Health Service Hospital $^{1-3}$	New Orleans	L. L. Swan	258	3,162	2,829	145,290	1	4	4^p	...
U. S. Public Health Service Hospital ^{1}	Baltimore, Md.	L. L. Ashburn	136	3,916	3,916	175,362	1	4	4^p	...
National Institutes of Health—Clinical Center	Bethesda, Md.	R. Lillie	...	.....	.....	....	2	2	1^a	...
U. S. Public Health Service Hospital $^{1-3}$	Staten Island, N. Y.	G. F. Cameron	125	.....	.....	275,000	1	3	4^p	...
U. S. Public Health Service Hospital ^{1}	Seattle, Wash.	T. L. Perrin	98	2,949	13,863	95,759	1	2	2^p	...
VETERANS ADMINISTRATION										
Veterans Admin. Hospital $^{1-3}$	Long Beach, Calif.	B. E. Konwaler	433	3,377	6,034	186,441	5	5	4^p	
Veterans Admin. Hospital $^{1-3}$	Los Angeles, Calif.	L. Kaplan	769	6,165	6,165	696,322	3	10	4^p	...
Veterans Admin. Hospital ^{1}	San Francisco	J. B. Frerichs T. V. Feightmeir	193	3,161	.....	186,965	1	4	3^p	...

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin. Hospital[1-3]	Denver, Colo.	W. B. Dublin	219	1,516	1,474	90,428	1	1	3[p]	...
Veterans Admin. Hospital[1-248]	Newington, Conn.	R. Yesner	92	1,698	1,627	121,914	1	2	2[p]	...
	, D. C.	J. S. Howe	207	1,445	1,415	103,276	1	4	2[p]	...
	s, Fla.	R. V. Thomson	248	2,409	2,300	111,707	1	4	4[p]	...
	a, Ga.	W. H. Sheldon	150	1,931	1,931	176,336	1	3	..	...
	ies, Ill.	W. L. McNamara	720	4,742	4,742	820,682	..	1	4[p]	...
	s, Ind.	(See Indiana University Medical Center Hospitals, Indianapolis, Ind.)								
	, Iowa	T. E. Corcoran	175	2,072	2,072	154,496	1	4	3[p]	...
	, Iowa	...	...	.....	.....	....	..	..	4[p]	...
	Kans.	...	...	.....	.....	....	..	..	1[p]	...
	Kans.	M. L. Jones	257	2,182	1,750	170,538	2	4	4[p]	...
	le, Ky.	H. Gordon	191	2,146	2,137	103,225	1	3	4[p]	...
	is, La.	J. Ziskind	143	2,151	2,141	185,077	1	2	3	...
	d, Md.	W. B. VandeGrift	168	883	850	76,253	1	1	2[p]	...
	Mass.	J. O. Houghton	336	3,633	3,633	251,561	2	2	2[p]	...
Veterans Admin. Hospital	xbury), Mass.	F. J. Rogan	...	.....	.....	....	1	3	3[p]	...
[147]	Dearborn, Mich.	(See Wayne University Affiliated Hospitals)								
[1-3]	Minneapolis, Minn.	D. F. Gleason	291	5,450	5,185	303,513	..	4	4[p]	...
Veterans Admin. Hospital[1-3]	Jefferson Bks., Mo.	F. Leidler	237	2,606	2,184	186,019	..	4	4[p]	...
Veterans Admin. Hospital[1]	Albuquerque, N. Mex.	W. Hentel	124	1,186	1,159	191,285	1	1	1[a]	...
Veterans Admin. Hospital[1-3]	Albany, N. Y.	T. S. Beecher	173	2,112	2,112	185,819	2	6	3[p]	...
Veterans Admin. Hospital[1-3-153]	Brooklyn, N. Y.	M. Bovarnick	291	3,393	3,393	408,721	1	3	1[p]	...
Veterans Admin. Hospital[1-3]	Buffalo, N. Y.	Alfred Golden	184	2,575	2,414	271,262	..	2	2[p]	...
Veterans Admin. Hospital[1-3]	New York City	B. S. Gordon	397	5,196	5,196	481,302	3	7	3[p]	...
Veterans Admin. Hospital[1-3]	Oteen, N. C.	O. Kanner	100	1,513	1,501	316,742	1	1	1[p]	...
Veterans Admin. Hospital[1-3]	Cleveland, Ohio	J. R. Kahn	241	3,787	3,451	336,632	..	4	4[p]	...
Veterans Admin. Hospital[1-3]	Dayton, Ohio	A. S. Thompson	289	2,091	5,225	245,545	1	4	2[a]	...
Veterans Admin. Hospital[1-200]	Aspinwall, Pa.	G. Brilmyer	241	1,622	1,622	285,630	2	6	4[a]	...
Veterans Admin. Hospital[1-3]	Memphis, Tenn.	J. M. Young	273	4,441	4,017	329,161	2	4	3[p]	...
Veterans Admin. Hospital	Nashville, Tenn.	S. H. Auerbach	113	1,780	1,611	145,595	1	2	2[p]	...
Veterans Admin. Hospital[1-3]	Dallas, Texas	L. Weiss	108	2,910	2,910	161,809	1	3	3[p]	...
Veterans Admin. Hospital[1-3]	Houston, Texas	B. Halpeat	294	2,101	1,831	264,408	..	4	4[p]	...
Veterans Admin. Hospital[1]	McKinney, Texas	B. E. McCain	166	1,897	1,897	111,909	2	5	2[p]	...
Veterans Admin. Hospital	Salt Lake City, Utah	O. N. Rambo, Jr.	116	1,013	797	101,364	1	2	2[a]	...
Veterans Admin. Hospital[1]	Richmond, Va.	J. R. Kriz	171	2,190	2,190	215,616	..	2	2[p]	...
Veterans Admin. Hospital[1-3]	Seattle, Wash.	D. V. Brown	176	1,291	1,147	74,136	1	3	1[p]	...
Veterans Admin. Hospital[1]	Milwaukee, Wis.	J. M. Lubitz	400	2,518	2,350	324,361	4	4	4[p]	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
Baptist Hospital[1-3]	Birmingham, Ala.	A. E. Casey	145	7,869	7,869	307,987	1	4	4[p]	200
Jefferson-Hillman Hospital[1-3]	Birmingham, Ala.	J. F. A. McManus	334	10,694	5,233	209,029	2	4	4[a]	...
Lloyd Noland Hospital[1-3]	Fairfield, Ala.	W. F. Scott, Jr.	101	1,563	1,560	126,559	1	1	1[p]	225
City Hospital	Mobile, Ala.	I. M. Wise E. B. Wert	198	2,090	4,180	74,776	2	6	3[p]	175
University Hospital[1]	Little Rock, Ark.	A. Nettleship	131	6,455	6,455	58,296	1	1	3[a]	120
Kern General Hospital[1-3]	Bakersfield, Calif.	R.W.Huntington,Jr.	304	2,823	2,514	192,286	1	3	4[p]	325
Herrick Memorial Hospital[1-3]	Berkeley, Calif.	H. R. Fishback P. Winquist	177	3,775	2,820	82,463	1	4	3[p]	100
Glendale Sanitarium & Hospital[1]	Glendale, Calif.	A. F. Brown	200	3,135	2,090	81,897	1	2	4[p]	164.50
Loma Linda Sanitarium & Hospital[1-3-33]	Loma Linda, Calif.	C. S. Small	200	3,600	3,400	70,000	3	8	4[p]	170
Seaside Memorial Hospital[1-3]	Long Beach, Calif.	J. A. Tuta	113	5,596	4,596	171,477	1	1	3[p]	150
California Hospital[1-3]	Los Angeles	A. Wright	174	6,462	4,598	148,388	1	1	4[p]	175
Cedars of Lebanon Hospital[1-3]	Los Angeles	N. Friedman	264	6,148	6,002	179,561	1	4	4[p]	150
Childrens Hospital[1-3]	Los Angeles	W. C. Thomas	193	649	576	116,013	3	3	1[a]	40
Hospital of the Good Samaritan	Los Angeles	L. J. Tragerman	144	5,868	3,809	126,158	1	2	4[p]	150
Los Angeles County Hospital[1]	Los Angeles	E. M. Butt	1,833	13,293	11,404	150,000	..	4	4[p]	190
Queen of Angels Hospital[1-3]	Los Angeles	A. R. Camero	305	5,516	4,703	147,754	..	1	3[p]	150
St. Vincent's Hospital	Los Angeles	...	...	.....	.....	.....	..	..	1[p]	...
White Memorial Hospital[1-3]	Los Angeles	O. B. Pratt	244	4,894	4,249	5,138	2	6	4[p]	146.25
Highland-Alameda County Hospital[1-3]	Oakland, Calif.	R. J. Parsons	288	3,789	3,207	129,101	1	4	4[p]	...
Kaiser Foundation Hospital[1-3]	Oakland, Calif.	M. Friedman	214	11,665	8,970	227,390	1	4	2[a]	...
Collis P. and Howard Huntington Memorial Hosp.[1-3]	Pasadena, Calif.	A. G. Foord	216	8,210	6,923	93,655	1	4	4[p]	240
Sacramento County Hospital[1-3]	Sacramento, Calif.	L. E. Nolan	479	.....	.....	119,141	1	1	1[a]	...
San Bernardino County Charity Hospital	San Bernardino	J. D. Kirshbaum	265	4,514	4,056	97,132	1	1	2[a]	190
Mercy Hospital[1-3]	San Diego	D. A. DeSanto	183	6,616	6,165	72,993	1	4	4[p]	175
San Diego County General Hospital[1-3]	San Diego	K. Fowler	239	2,076	1,562	98,313	1	4	4[p]	150
Franklin Hospital[1-3]	San Francisco	J. L. Carr	97	4,414	2,655	44,558	1	1	2[p]	125
French Hospital[1-3]	San Francisco	G. A. Watson	81	2,740	1,807	78,214	2	2	2[p]	125
Mount Zion Hospital[1-3]	San Francisco	G. R. Biskind	212	4,861	4,826	112,645	2	4	4[p]	100
St. Luke's Hospital[1-3]	San Francisco	M. B. Black	105	4,241	2,459	82,313	..	2	2[p]	200
St. Francis Hospital	San Francisco	...	...	.....	.....	....	..	..	2[p]	...
San Francisco Hospital	San Francisco	...	...	.....	.....	....	..	..	3[a]	175
Stanford University Service[1]		A. J. Cox	259	1,218	1,219	....	..	..	..	...
University of California Service[1]		J. W. Carr	269	1,569	1,569	....	..	..	..	...
Stanford University Hospitals[1-3]	San Francisco	A. J. Cox	151	3,059	3,059	72,007	1	2	3[a]	50
University of California Hospital	San Francisco	J. F. Rinehart	137	4,309	4,309	85,000	..	4	3[p]	87
Santa Clara County Hospital[1]	San Jose, Calif.	D. L. Alcott	194	1,804	1,696	120,019	1	3	3[p]	260
Santa Barbara Cottage Hospital[1-3]	Santa Barbara, Calif.	E. L. Benjamin	106	3,390	2,516	46,984	1	3	2[a]	115
Glockner-Penrose Hospital[1-3]	Colorado Springs, Colo.	E. F. Geever	167	4,701	121,504	121,504	1	2	2[p]	200
Children's Hospital[1-3]	Denver	H. D. Palmer	117	541	521	113,841	1	3	4[p]	...
General Rose Memorial Hospital[1-3]	Denver	K. T. Neubuerger	122	5,360	3,378	72,901	1	1	1[p]	160
Presbyterian Hospital[1-3]	Denver	A. E. Lubchenco	125	3,572	2,675	52,857	1	1	1[a]	...
St. Joseph's Hospital[1]	Denver	E. I. Dobos	171	4,832	.....	69,881	1	2	2[p]	150
St. Luke's Hospital[1-3]	Denver	W. O. Black	169	8,458	5,715	107,619	1	3	4[p]	150
University of Colorado Medical Center		...	...	.....	.....	....	4	10	..	150
Colorado General Hospital[1-3-22]	Denver	J. B. McNaught	260	2,695	2,692	152,514	..	..	4[p]	...
Denver General Hospital[1-3-22]	Denver	J. R. Kraft	658	1,911	1,911	160,663	..	..	4[p]	...
Colorado State Hospital[1-3]	Pueblo, Colo.	M. Gallavan	181	825	825	84,579	1	2	3[p]	275
Bridgeport Hospital[1-3]	Bridgeport, Conn.	I. B. Akerson	159	4,032	4,032	109,443	1	2	2[a]	125
Hartford Hospital[1-3]	Hartford, Conn.	R. E. Kendall	480	10,105	9,403	223,148	1	3	4[p]	50
St. Francis Hospital[1-3]	Hartford, Conn.	L. P. Hastings	212	5,668	5,201	187,134	2	4	4[p]	100
Middlesex Hospital[1-3]	Middletown, Conn.	C. E. McLeod	138	2,650	1,606	52,801	1	1	2[p]	100
New Britain General Hospital[1-3]	New Britain, Conn.	T. J. Madden	141	.....	.....	123,196	1	3	3[p]	130
Grace-New Haven Community Hospital[1-3]	New Haven	A. A. Liebow	344	7,676	7,089	161,800	1	4	3[a]	50
Hospital of St. Raphael[3]	New Haven	R. R. Nesbit	156	.....	.....	78,631	1	4	4[p]	100
Norwalk Hospital	Norwalk, Conn.	R. N. Barnett	125	2,485	2,485	95,491	2	2	3[p]	180
Stamford Hospital[1-3]	Stamford, Conn.	J. G. Snavely	153	2,947	2,772	150,145	4	4	4[p]	...

Numerical and other references will be found on pages 373 and 374.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
St. Mary's Hospital [1-3]	Waterbury, Conn.	M. E. Cox	111	4,629	3,290	117,139	2	2	3^p	150
Waterbury Hospital [1]	Waterbury, Conn.	J. O. Collins	230	3,924	3,521	161,928	1	3	4^p	125
Delaware Hospital [1-3]	Wilmington, Del.	J. W. Howard	242	6,047	5,853	163,499	1	3	4^p	180
Memorial Hospital [1-3]	Wilmington, Del.	J. W. Abbiss	161	3,251	8,251	77,225	1	2	2^a	...
Wilmington General Hospital [1-3]	Wilmington, Del.	J. V. Casella	52	2,555	2,550	103,761	1	1	1^p	250
Children's Hospital [1-3]	Washington, D. C.	E. C. Rice	128	660	231	116,840	1	2	2^p	50
Doctors Hospital [1-3]	Washington, D. C.	O. B. Hunter	157	6,812	5,747	224,905	1	1	2^p	290
Gallinger Municipal Hospital [1-3]	Washington, D. C.	D. Weiss	649	2,888	2,888	205,922	2	6	3	...
Garfield Memorial Hospital [1-3]	Washington, D. C.	E. C. Rice	148	2,954	1,714	70,430	1	3	4^p	160
University Hospital [1-3]	Washington, D. C.	C. F. Geschickter	197	3,398	3,398	261,060	6	12	4^p	...
rsity Hospital [1-3]	Washington, D. C.	T. M. Peery	220	5,570	5,420	217,793	1	3	4^p	130
	Washington,, D. C.	H. H. Leffler	151	4,509	4,584	129,375	1	3	4^p	200
[1-3]	Washington, D. C.	O. B. Hunter, Jr.	154	4,673	3,977	100,094	1	1	4^p	300
	Jacksonville, Fla.	C. Wells	106	4,019	3,086	77,041	1	1	1^p	135
Jackson Memorial Hospital [1]	Miami, Fla.	P. R. Rezek	412	7,353	6,447	220,471	3	7	4^p	75
Mount Sinai Hospital [1-3]	Miami Beach, Fla.	M. Lev	158	2,294	1,965	108,012	1	4	4^p	...
St. Francis Hospital	Miami Beach, Fla.	...	...	.....	.....	....	..	..	1^p	...
Crawford W. Long Memorial Hospital [1-3]	Atlanta, Ga.	D. Ayer	215	5,294	5,138	100,912	2	4	4^p	87.50
Georgia Baptist Hospital [1-3]	Atlanta, Ga.	J. Funke	88	3,725	3,725	47,210	1	1	2^p	280
Grady Memorial Hospital [1-3]	Atlanta, Ga.	W. H. Sheldon	554	8,128	26,147	214,934	5	10	4^p	20
Piedmont Hospital	Atlanta, Ga.	W. Matthews	49	1,433	1.433	66,743	1	1	4^p	100
University Hospital	Augusta, Ga.	E. Pund W. L. Shepard	144	6,335	4,699	89,614	1	1	3	160
Emory University Hospital [1-3-72]	Emory University, Ga.	A. Golden	170	3,992	3,992	107,556	..	4	4^p	170
Alexian Brothers Hospital [3]	Chicago	J. P. Simonds	133	.....	.....	66,296	1	1	1^p	125
Augustana Hospital [1-3]	Chicago	G. Milles	196	3,594	3,268	73,832	1	2	4^p	150
Children's Memorial Hospital [1-3]	Chicago	J. D. Boggs	96	1,103	1,103	74,703	..	2	1^p	30
Cook County Hospital [1-3]	Chicago	H. Popper	1,193	9,030	7,221	340,471	4	4	4^p	50
Englewood Hospital [3-92]	Chicago	G. T. Rich	82	1,556	1,545	58,193	1	1	1^a	200
Grant Hospital [1-3]	Chicago	C. C. Mason	144	4,504	2,700	79,222	1	1	3^p	...
Illinois Masonic Hospital [1-3]	Chicago	L. S. King	210	3,124	3,100	142,896	1	3	3^p	85
Mercy Hospital [1-3]	Chicago	J. F. Sheehan	159	5,097	3,220	77,000	1	4	3	100
Michael Reese Hospital [1-3]	Chicago	O. Saphir	480	6,984	6,984	514,026	2	7	4^p	100
Mount Sinai Hospital [1-3]	Chicago	I. Davidsohn	235	6,248	4,459	278,891	1	4	4^p	100
Norwegian American Hospital [1-3]	Chicago	A. Learner	74	2,894	1,981	68,125	1	1	1^p	200
Passavant Memorial Hospital [1-3]	Chicago	M. Wheelock W. Wartman	137	3,478	3,478	137	2	4	4^p	...
Presbyterian Hospital [1-3]	Chicago	G. M. Hass	211	4,416	4,416	194,128	2	4	4^p	125
Provident Hospital [1-3]	Chicago	J. E. Bowman	100	2,058	1,900	71,337	1	2	1^p	200
Ravenswood Hospital [1-3]	Chicago	L. A. Ferraro	187	2,376	2,326	76,993	1	3	2^p	100
St. Joseph Hospital	Chicago	G. Stevenson	84	1,716	1,695	61,971	4	4	2^p	200
St. Luke's Hospital [1-3]	Chicago	E. F. Hirsch	273	7,440	5,952	307,177	2	6	4^p	50
St. Mary of Nazareth Hospital	Chicago	E. W. Thurston	139	3,352	2,514	161,450	1	1	2^a	150
University of Chicago Clinics [1-3]	Chicago	P. R. Cannon	280	5,003	5,003	303,360	1	3	4^p	175
University of Illinois Research and Educational Hospitals [1-3]	Chicago	G. A. Bennett	211	5,396	5,396	327,777	4	6	4^p	60
Wesley Memorial Hospital [1-3]	Chicago	T. C. Laipply	232	5,454	5,454	239,635	1	4	4^p	50
Evanston Hospital [1-3]	Evanston, Ill.	H. G. Davis, Jr.	271	4,012	2,925	158,210	1	3	4^p	50
St. Francis Hospital [1-3]	Evanston, Ill.	J. W. Henry	231	5,020	3,746	161,541	1	3	3^p	150
Methodist Hospital of Central Illinois [1-3]	Peoria, Ill.	D. O. Manshardt	81	.....	.....	64,110	1	1	2^p	175
St. Francis Hospital [1-3]	Peoria, Ill.	J. R. Kraft	212	5,768	4,471	125,150	1	4	4^p	...
St. Anthony Hospital [1-3]	Rockford, Ill.	A. R. K. Matthews	112	3,479	3,320	96,459	1	3	3^p	200
St. Joseph Hospital [1-3-100]	Fort Wayne, Ind.	S. M. Rabson	196	3,874	3,333	96,225	1	4	4^p	455
Indianapolis General Hospital [1]	Indianapolis	W. L. Drake	296	2,723	2,692	142,858	1	3	3	210
Indiana University Medical Center Hospitals										
Indiana University Medical Center [1]	Indianapolis	E. B. Smith	392	4,006	4,006	205,935	4	9	4^p	175
Veterans Admin. Hospital [1]		D. Rosenbaum	237	1,575	1,575	127,632	3	3	3^p	...
Methodist Hospital [1-3]		H. M. Banks	233	12,761	8,763	432,772	1	3	4^p	...
St. Vincent's Hospital [1]		L. N. Foster	194	5,722	3,496	83,573	1	2	4^p	250
St. Elizabeth Hospital [1-3]	Lafayette, Ind.	J. M. McFadden	142	5,745	2,759	116,477	1	3	3^p	250
Ball Memo	Muncie, Ind.	L. G. Montgomery	112	5,696	4,756	122,708	3	3	4^p	150
South Benc	th Bend, Ind.	C. S. Culbertson	366	9,110	8,732	237,763	1	4	4^p	300
Elkhart	Elkhart, Ind.	...	...	.....	.....	....	..	..	..	...
St. Joseph Hospital	Mishawaka, Ind.	...	...	.....	.....	....	..	..	..	...
Memorial Hospital	South Bend, Ind.	...	...	.....	.....	....	..	..	..	...
St. Joseph Hospital	South Bend, Ind.	...	...	.....	.....	....	..	..	..	...
Iowa Methodist Hospital [1-3]	Des Moines, Iowa	R. C. Dunn	159	3,708	3,676	138,270	1	2	2^a	100
Mercy Hospital [1-3]	Des Moines, Iowa	F. C. Coleman	182	3,331	3,331	109,420	1	4	4^p	300
University Hospital	Iowa City, Iowa	E. D. Warner	349	6,833	6,833	91,162	1	3	3^p	200
University of Kans	ansas City, Kans.	R. Stowell	422	4,445	4,410	428,869	3	10	4^p	125
St. Francis Hospital [1-3]	Wichita, Kans.	W. P. Callahan	227	9,126	7,984	141,476	1	4	4^p	250
Louisville General Hospital [1-3]	Louisville, Ky.	A. J. Miller	385	2,543	2,503	197,281	1	3	3	150
Baton Rouge General Hospital [1]	Baton Rouge, La.	S. H. Colvin W. S. Randall	59	3,448	3,448	105,261	1	1	1^c	300
Charity Hospital of Louisiana [1-3]	New Orleans	E. Moss	1,451	12,179	12,179	675,770	8	12	4^p	40
Hotel Dieu Sisters' Hospital [1]	New Orleans	R. M. Hartwell	97	7,481	7,481	175,049	1	3	4^p	200
Southern Baptist Hospital [1]	New Orleans	E. H. Lawson	132	9,335	9,335	348,656	1	4	4^p	225
Touro Infirmary [1]		A. J. Hertzog	209	17,625	11,539	251,107	1	8	4^p	35
Confederate Memo		W. R. Mathews	231	4,860	4,860	188,316	1	4	2^a	...
Eastern Maine Ge		R. C. Wadsworth	121	5,424	4,917	123,337	1	2	4^p	100
Central Maine Ge		C. F. Branch	204	6,386	6,386	75,907	1	1	4^p	150
Maine General Hospital [1-		J. E. Porter	205	5,086	4,281	138,139	3	3	4^p	100
Baltimore City Hospitals		H. W. Keschner	324	1,163	1,163	110,000	1	3	2^a	75
Johns Hopkins Hospital [1]		A. R. Rich	533	5,485	5,485	....	..	4	3^a	...
Mercy Hospital	Baltimore	...	...	.....	.....	....	..	..	1^a	...
Sinai Hospital [1-3]	Baltimore	...	185	7,636	7,636	253,349	2	6	4^p	85
Union Memorial Hospital [1-3]	Baltimore	W. C. Merkel	167	2,954	2,900	122,399	1	2	4^p	65
Memorial Hospital [1-3-127]	Cumberland, Md.	B. Skitarelic	93	3,246	3,246	111,643	1	2	2^a	100
Beverly Hospital [1-3]	Beverly, Mass.	D. E. Brown	118	1,478	1,478	73,560	1	1	4^p	100
Beth Israel Hospital [1-3]	Boston	M. J. Schlesinger	193	3,762	3,757	157,700	2	3	4^p	41.82
Boston City Hospital [1-3]	Boston	G. K. Mallory	930	5,693	5,693	108,197	7	13	4^p	112
Boston Lying-In Hospital [1-3-111]	Boston	D. G. McKay	93	2,333	2,333	11,124	1	2	1^p	25
Children's Medical Center [1-3]	Boston	S. Farber	308	1,494	1,494	91,572	..	2	1^a	50
Faulkner Hospital [1-3]	Boston	P. M. LeCompte	116	2,627	2,100	57,606	..	1	1^a	162
Massachusetts General Hospital [1-3]	Boston	B. Castleman	473	7,865	7,865	8,875	3	9	4^p	100
Massachusetts Memorial Hospitals [1-3]	Boston	R. Osgood	144	2,443	2,431	....	2	3	2^a	50
New England Deaconess Hospital [1-3]	Boston	S. Warren	260	7,472	7,472	177,466	2	7	4^p	135
Peter Bent Brigham Hospital [1-3]	Boston	G. J. Dammin	269	2,592	2,592	78,049	2	5	3	25
St. Elizabeth's Hospital [1-3]	Boston	J. H. Graham	135	4,341	4,017	106,224	1	1	1^a	125
Cambridge City Hospital [1-3]	Cambridge, Mass.	R. Z. Schulz	114	1,239	1,239	50,497	1	1	1	125

Numerical and other references will be found on pages 373 and 374.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered[8]	Total Residencies Offered[9]	Length of Approved Program (Years)	Beginning Stipend (Month)
Mount Auburn Hospital[1-3]	Cambridge, Mass.	H. E. MacMahon	112	2,719	2,719	80,592	..	1	1	115
Burbank Hospital[1]	Fitchburg, Mass.	H. J. Sparling, Jr.	75	2,293	2,293	49,141	1	1	1[p]	250
Framingham Union Hospital[1-3]	Framingham, Mass.	C. G. Tedeschi	86	3,421	3,316	38,192	1	2	2[a]	...
Lawrence General Hospital[1-3]	Lawrence, Mass.	L. S. Jolliffe	128	1,425	1,425	76,652	1	3	3[p]	125
Lynn Hospital[1-3]	Lynn, Mass.	H. Olken	127	.....	3,926	108,088	..	2	1[p]	150
Malden Hospital		M. V. MacKenzie	79	2,311	2,301	70,212	..	2	1[a]	100
St. Luke's Hospit		V. Kiarsis	117	4,104	2,900	148,027	1	3	2[a]	200
Newton-Wellesley		D. Skinner	124	3,695	3,581	90,777	1	2	2[p]	170
Quincy City Hospital[1-3]	Quincy, Mass.	R. B. Street, Jr.	130	2,023	2,008	87,251	2	3	2[p]	150
Salem Hospital[1-3]	Salem, Mass.	D. A. Nickerson	223	6,030	6,030	88,154	1	4	4[p]	125
Springfield Hospital[1-3]	Springfield, Mass.	W. Kaufmann	148	4,526	4,520	88,322	1	4	2[a]	75
Pondville Hospital	Walpole, Mass.	S. Warren	109	1,865	1,865	35,807	..	2	1[a]	490
Memorial Hospital[1-3]	Worcester, Mass.	R. C. Sniffen	110	.....	.....	59,232	1	1	2[p]	200
Worcester City Hospital[1-3]	Worcester, Mass.	F. Fite	304	6,175	6,175	113,514	1	3	3[p]	215
St. Joseph's Mercy Hospital[1-3]	Ann Arbor, Mich.	S. C. Howard	121	38,003	38,003	115,041	1	2	2[a]	200
University Hospital[1-3]	Ann Arbor, Mich.	C. V. Weller	448	8,614	8,614	......	2	10	3	134.16
Leila Y. Post Montgomery Hospital[1-3]	Battle Creek, Mich.	A. A. Humphrey	110	2,586	2,446	72,327	1	1	3[p]	275
Detroit Memorial Hospital[1-3]	Detroit	H. J. Linn	135	.....	.....	83,475	1	1	4[p]	225
Grace Hospital[1-3]	Detroit	C. I. Owen	282	9,318	9,318	222,344	1	2	3[p]	225
Harper Hospital[1-3]	Detroit	P. F. Morse	279	7,281	7,281	253,210	1	3	4[p]	225
Henry Ford Hospital[1-3]	Detroit	F W. Hartman	388	8,451	8,451	426,804	3	8	4[p]	225
Mount Carmel Mercy Hospital[1]	Detroit	L. W. Gardner	244	7,891	7,891	214,759	1	4	4[p]	225
Providence Hospital[1-3]	Detroit	D. H. Kaump	266	4,452	4,452	171,700	1	4	4[p]	250
Wayne University Affiliated Hospitals										
Veterans Admin. Hospital[1-3]	Dearborn, Mich.	M. W. Wilson	255	2,600	2,600	214,387	1	4	4[p]	...
City of Detroit Receiving Hospital[1-3]	Detroit	P. C. Martineau	199	1,157	1,157	1,053,770	1	2	4[p]	456
Herman Kiefer Hospital[1-3]	Detroit	O. A. Brines	664	4,359	4,359	300,030	2	8	1[p]	254
Woman's Hospital[1-3]	Detroit	D. C. Beaver	80	16,557	15,234	114,758	1	2	2[a]	250
Wayne County General Hospital and Infirmary[1-3]	Eloise, Mich.	S. E. Gould	492	4,517	.....	225,424	1	2	4[p]	278.33
Hurley Hospital[1]	Flint, Mich.	G. R. Backus R. J. Jermstad	202	4,727	3,884	170,450	1	1	4[p]	300
Blodgett Memorial Hospital[1-3]	Grand Rapids, Mich.	C. A. Payne	174	5,458	5,458	101,095	1	2	2[p]	200
Butterworth Hospital[1-3]	Grand Rapids, Mich.	G. T. Schloss	132	6,141	4,047	119,759	1	3	2[a]	225
Edward W. Sparrow Hospital[1]	Lansing, Mich.	C. E. Black	198	4,032	4,032	98,966	1	3	3[p]	325
Saginaw General Hospital[1-3]	Saginaw, Mich.	R. V. Bucklin	175	2,533	2,497	78,190	1	1	2[p]	320
St. Luke's Hospital[1-3]	Duluth, Minn.	A. H. Wells	318	.....	.....	300,765	4	16	4[p]	200
St. Mary's Hospital[1-3]	Duluth, Minn.	W. V. Knoll	226	3,259	3,090	239,629	1	2	4[p]	215
Minneapolis General Hospital[1-3]	Minneapolis	J. I. Coe	314	2,796	2,022	392,927	1	2	3[a]	169
Northwestern Hospital[1-3]	Minneapolis	F. H. Lott	139	4,366	3,658	88,288	..	1	2[a]	200
St. Barnabas Hospital[1-3]	Minneapolis	N. H. Lufkin	158	3,202	2,655	102,733	1	1	2[a]	175
Swedish Hospital[1-3]	Minneapolis	A. Jay	158	4,865	3,889	92,431	1	1	3[p]	200
University of Minnesota Hospitals[1-3]	Minneapolis	J. Dawson	363	5,414	5,055	411,344	..	6	4[p]	150
Mayo Foundation[1-3]	Rochester, Minn.	J. W. Kernohan	816	25,954	25,497	861,242	6	18	4[p]	150
Ancker Hospital[1-3]	St. Paul	J. F. Noble	379	1,523	1,370	183,405	1	1	1[a]	150
Charles T. Miller Hospital[1-3-150]	St. Paul	K. Ikeda	126	4,830	4,570	132,910	1	1	4[p]	150
St. Joseph's Hospital[1-3]	St. Paul	E. M. James	165	4,575	4,069	100,891	2	2	2[p]	150
St. Louis County Hospital[1-3]	Clayton, Mo.	H. Allen	146	1,366	1,057	105,334	..	1	3	275
Kansas City General Hospital No. 1	Kansas City, Mo.	V. B. Buhler	429	2,468	1,975	449,995	1	4	4[p]	75
Menorah Hospital Medical Center[1-3]	Kansas City, Mo.	H. Cohen	127	4,310	3,404	106,039	1	3	3[p]	154.50
Research Hospital[1-3]	Kansas City, Mo.	H. K. B. Allebach	160	4,472	4,276	156,279	1	3	4[p]	175
St. Joseph Hospital[3]	Kansas City, Mo.	R. W. Kerr	150	6,447	4,937	209,404	1	4	3[a]	200
St. Luke's Hospital[1-3]	Kansas City, Mo.	F. C. Helwig	209	10,409	9,368	108,118	2	5	4[p]	175
St. Mary's Hospital[1-3]	Kansas City, Mo.	A. Lapi	145	4,518	4,067	129,000	1	1	2[a]	200
Barnes Hospital[1-3]	St. Louis	R. A. Moore	540	6,896	6,896	401,299	2	13	4[p]	50
Homer G. Phillips Hospital[1-3]	St. Louis	J. A. Saxton	208	2,849	2,560	165,519	2	6	2[p]	190
Jewish Hospital[1-3-4]	St. Louis	H. T. Blumenthal	176	4,140	3,420	157,393	1	4	4[p]	100
Missouri Baptist Hospital[1-3]	St. Louis	W. R. Platt	95	.....	.....	....	1	2	3[p]	...
St. Louis City Hospital[1-3]	St. Louis	J. Saxton	561	3,133	7,621	221,696	4	7	4[p]	137.75
St. Mary's Group of Hospitals[1-3]	St. Louis	H. Pinkerton	283	7,916	6,443	361,182	2	8	3	200
Montana Deaconess Hospital	Great Falls, Mont.	E. Hildebrand	56,593	2,431	2,393	107	1	1	2[p]	200
Lincoln General Hospital[1-3-168]	Lincoln, Neb.	F. Tanner	93	.....	.....	63,608	1	1	1[p]	200
Bishop Clarkson Memorial Hospital	Omaha	....	...	.....	.....	......	..	..	3[p]	...
Creighton Memorial St. Joseph's Hospital[1]	Omaha	B. C. Russum	162	16,036	14,754	168,656	2	4	4[p]	150
Nebraska Methodist Hospital[1-3]	Omaha	J. R. Schenken	177	5,202	5,202	52,410	1	4	4[p]	250
University of Nebraska Hospital[1-3]	Omaha	J. P. Tollman	128	4,829	4,600	94,133	2	6	4[p]	175
Mary Hitchcock Memorial Hospital		R. E. Miller	125	3,277	3,019	132,550	1	4	4[p]	170
Elliott Hospital[3]		S. M. Brooks	90	2,477	1,658	37,467	1	1	1[p]	...
Atlantic City Hospital[1]		M. Ackerman	150	2,142	2,142	54,156	1	1	2[p]	150
Cooper Hospital[1-3]		W. T. Read	253	3,220	3,215	171,352	1	3	4[p]	200
West Jersey Hospital[1-3]		A. S. Conston	182	5,154	5,154	122,896	..	2	2[a]	200
Medical Center-Jersey City Hospita		A. Gnassi	305	4,909	4,909	277,635	2	3	3[a]	100
Monmouth Memorial Hospital[1-3]	Long Branch, N. J.	A. Yaguda	113	3,148	4,260	98,557	1	1	3[p]	200
Mountainside Hospital[1-3]	Montclair, N. J.	J. L. Work	178	4,368	4,203	133,706	1	2	3[p]	175
Morristown Memorial Hospital	Morristown, N. J.	....	...	.....	.....	......	..	..	2[a]	...
Burlington County Hospital[1-3]	Mt. Holly, N. J.	J. T. Bauer	84	1,024	1,024	33,552	1	1	1[a]	100
Hospital of St. Barnabas and for Women and Children[1-3]	Newark, N. J.	W. G. Bernhard	114	2,727	2,276	78,863	2	5	2[p]	100
Newark Beth Israel Hospital[1-3]	Newark, N. J.	L. Goldman	237	4,397	4,261	66,185	1	4	4[p]	75
Newark City Hospital[1-3]	Newark, N. J.	H. S. Martland	364	1,785	2,901	216,462	2	6	3[a]	115
Presbyterian Hospital[1-3]	Newark, N. J.	S. A. Goldberg	99	9,674	4,184	108,259	1	1	2[p]	125
St. Michael's Hospital[1-3]	Newark, N. J.	S. J. Rose	154	4,178	4,178	149,343	1	2	4[p]	...
Orange Memorial Hospital[1-3]	Orange, N. J.	A. R. Abel	166	2,794	2,794	88,571	1	1	2[p]	120
Passaic General Hospital[1-3]	Passaic, N. J.	J. R. Gannon	105	2,518	2,155	76,798	1	3	3[p]	150
St. Mary Hospital	Passaic, N. J.	....	...	.....	.....	......	..	..	2[p]	...
Paterson General Hospital[1-3]	Paterson, N. J.	A. H. Davis	130	5,220	4,417	75,006	1	2	2[p]	100
St. Joseph Hospital[1-3]	Paterson, N. J.	G. B. Kim	165	.....	.....	83,825	1	1	3[p]	150
Muhlenberg Hospital[1-3]	Plainfield, N. J.	C. G. Darlington H. Hansen	123	3,230	3,000	78,303	1	1	1[p]	200
Mercer Hospital[1-3-257]	Trenton, N. J.	T. K. Rathmell	124	1,773	1,799	93,510	2	6	4[p]	150
Albany Hospital[1-3]	Albany, N. Y.	A. W. Wright	426	7,461	7,461	220,056	1	4	3	135
Bender Laboratory Hospitals[1-3]	Albany, N. Y.	J. J. Clemmer	209	8,608	8,608	343,000	2	5	3	300
Anthony N. Brady Maternity Home	Albany, N. Y.	....	...	.....	.....	......	..	..	..	...
Memorial Hospital	Albany, N. Y.	....	...	.....	.....	......	..	..	..	...
St. Peter's Hospital	Albany, N. Y.	....	...	.....	.....	......	..	..	..	...
Binghamton City Hospital[1-3]	Binghamton, N. Y.	J. S. Grewal	190	3,441	2,998	109,555	1	2	4[p]	150
Beth-El Hospital[1-3-181]	Brooklyn	P. Gruenwald	119	3,501	3,491	205,635	2	6	4[p]	100
Brooklyn Hospital[1-3]	Brooklyn	J. A. de Veer	149	4,025	4,025	137,595	1	3	4[p]	100
Coney Island Hospital[1-3]	Brooklyn	H. Fink	144	1,357	1,357	200,000	2	5	4[p]	98.30
Cumberland Hospital[1-3]	Brooklyn	S. H. Polayes	109	1,681	3,362	186,923	1	2	4[p]	99
Greenpoint Hospital[1-3]	Brooklyn	R. Aronoff	122	5,748	5,748	260,062	1	2	3[p]	...

Numerical and other references will be found on pages 373 and 374.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Jewish Hospital[1-3]	Brooklyn	D. Grayzel	270	6,768	10,487	159,200	3	4	4[p]	75
Kings County Hospital[1-3]	Brooklyn	H. Siegel	1,068	14,705	14,705	903,591	5	10	3	98
Long Island College Hospital[1-3]	Brooklyn	T. G. Morrione	126	3,357	3,968	129,362	1	4	4[p]	75
Maimonides Hospital[1-3]	Brooklyn	A. R. Kantrowitz	178	4,459	4,459	229,124	2	5	3[p]	75
Methodist Hospital[1-3]	Brooklyn	B. S. Herr, Jr.	104	3,352	3,346	105,584	1	3	3[p]	75
Norwegian Lutheran Deaconesses' Home and Hospital[1-3]	Brooklyn	E. S. Wedding	127	2,059	2,059	70,000	1	2	1[p]	100
St. Catherine's Hospital[1-3]	Brooklyn	M. Wachstein	125	1,600	1,600	98,543	1	2	2[p]	125
St. Mary's Hospital[1-3]	Brooklyn	W. Moitrier	62	2,101	2,101	46,097	1	1	1[p]	175
Buffalo General Hospital[1-3]	Buffalo	K. L. Terplan	341	5,475	5,044	5,475	..	2	3	125
Deaconess Hospital[1-3]	Buffalo	S. Tannhauser	91	9,223	8,135	89,444	1	1	3[p]	175
Edward J. Meyer Memorial Hospital[1-3]	Buffalo	S. Sanes	434	3,890	1,338	311,812	1	3	2[a]	179
Millard Fillmore Hospital[1-3]	Buffalo	A. V. Postoloff	274	6,522	6,522	250,646	1	1	2[a]	255
Flushing Hospital and Dispensary[1-3]	Flushing, N. Y.	J. Werne	149	3,025	2,825	105,032	1	2	3[p]	125
Meadowbrook Hospital[1-3]	Hempstead, N. Y.	T. J. Curphey	389	2,307	1,778	186,965	2	6	4[p]	225
Mary Immaculate Hospital[1-3]	*Jamaica, N. Y.*	*M. Bevilacqua*	*92*	*3,053*	*2,500*	*116,121*	1	2	2[p]	110
Queens General Hospital[1-3]	Jamaica, N. Y.	A. Angrist	679	3,219	3,219	541,264	1	2	4[p]	98.33
Charles S. Wilson Memorial Hospital[1-3]	Johnson City, N. Y.	A. Kosinski	179	5,293	3,196	142,254	1	4	4[p]	175
Long Island City Hospital[1-3]	Long Island, N. Y.	J. Werne	160	919	919	51,647	1	2	3[t],1[p]	150
Nassau Hospital[1-3]	Mineola, N. Y.	F. A. Inda	106	8,108	3,703	70,748	1	2	1[p]	...
Mount Vernon Hospital[3]	Mt. Vernon, N. Y.	J. G. Sharnoff	114	4,460	4,460	82,363	1	1	3[p]	200
New Rochelle Hospital[3]	New Rochelle, N. Y.	W. C. Schraft	130	5,878	5,878	107,065	1	1	1[p]	125
Bellevue Hospital Center Division III—New York Univ. College of Medicine[1-3]	New York City	S. L. Wilens	772	6,700	6,700	1,112,394	..	2	4[p]	98
Beth Israel Hospital[1-3]	New York City	W. Antopol	110	4,228	4,228	164,365	2	2	4[p]	75
Bronx Hospital[1-3]	New York City	J. Felsen	73	5,031	5,741	101,898	1	3	2[p]	100
Doctors Hospital[1-3]	New York City	J. R. Lisa	69	6,075	5,818	74,884	1	1	1[a]	200
Flower and Fifth Avenue Hospitals[1-3]	New York City	F. D. Speer	147	5,408	3,903	168,522	1	2	3[p]	...
Fordham Hospital[1-3]	New York City	L. J. Millman	211	2,917	2,917	177,649	3	3	2[a]	93.33
Goldwater Memorial Hospital[1-3]	New York City	J. Rosenthal	134	2,940	2,940	125,169	2	4	3[p]	98
Harlem Hospital[1-3]	New York City	V. Dolgopol	245	21,161	21,161	315,846	1	3	4[p]	98.32
Hospital for Joint Diseases[1-3]	New York City	H. L. Jaffe	33	2,588	2,588	87,549	2	2	1[a]	70
Jewish Memorial Hospital[1-3]	New York City	A. Angrist	39	2,192	2,192	90,839	1	1	1[p]	150
Lebanon Hospital[1-3]	New York City	J. C. Ehrlich	94	3,330	3,330	100,289	2	2	2[p]	100
Lenox Hill Hospital[1-3]	New York City	G. L. Rohdenburg	118	4,957	4,955	122,959	1	1	1[a]	180
Lincoln Hospital[1-3]	New York City	H. Lepow	162	2,325	2,325	134,061	1	2	3	99
Memorial Center for Cancer and Allied Diseases[1-3]	New York City	F. Stewart	225	20,971	20,971	20,971	..	10	3[t]	300
Metropolitan Hospital[1-3]	New York City	A. Sala	304	2,148	2,148	271,255	1	2	2[a]	98
Montefiore Hospital[1-3]	New York City	H. M. Zimmerman	352	3,400	3,400	109,887	3	6	3[p]	60
Morrisania City Hospital[1-3]	New York City	W. Aronson	221	4,217	3,624	503,487	1	2	4[p]	98
Mount Sinai Hospital[1-3]	New York City	G. Shwartzman P. Klemperer	349	7,633	7,633	265,500	7	17	3[a]	...
New York City Hospital[1-3]	New York City	L. H. Sophian	213	971	770	146,797	1	4	4[p]	150
New York Hospital[1-3]	New York City	J. Kidd	371	7,057	6,417	443,080	2	5	4[p]	25
New York Polyclinic Hospital[1-3]	New York City	D. J. DiMaio	86	7,063	7,063	50,245	1	4	2[p]	...
New York University-Bellevue Medical Center		(See also Bellevue Hospital Center, Division III)								
University Hospital[1-3]	New York City	M. N. Richter	106	5,860	4,916	16,514	1	2	4[p]	85
Presbyterian Hospital[1-3]	New York City	H. P. Smith	531	5,956	5,956	5,956	2	4	3[t]	208.33
Roosevelt Hospital[1-3]	New York Ctiy	W. W. Brandes	129	11,822	9,384	163,167	2	2	2[t]	116
St. Barnabas Hospital for Chronic Diseases[1-3-223]	New York City	H. K. Russell	105	1,036	1,036	60,617	1	2	2[a]	125
St. Clare's Hospital[1]	New York City	J. M. Ravid	88	2,846	2,846	67,628	1	2	1[p]	50
St. Luke's Hospital[1-3]	New York City	B. E. Clarke	198	3,326	3,326	190,919	1	4	4[p]	60
St. Vincent's Hospital	New York City	A. Rottino	354	3,729	3,729	186,123	1	4	2[t]	50
Willard Parker Hospital[1-3]	New York City	V. B. Dolgopol	18	148	148	103,189	1	1	1	150
United Hospital	Port Chester, N. Y.	M. Loder	89	2,293	2,245	81,715	1	1	1[p]	200
Genesee Hospital[1-3]	Rochester, N. Y.	F. McKee	168	4,093	4,036	153,160	1	2	4[p]	75
Rochester General Hospital[1-3]	Rochester, N. Y.	M. G. Bohrod	297	6,193	4,335	128,114	4	12	4[p]	100
St. Mary's Hospital[1-3]	Rochester, N. Y.	J. Adler	177	6,439	3,016	108,451	2	3	3[p]	200
Strong Memorial-Rochester Municipal Hospitals[1-3]	Rochester, N. Y.	G. H. Whipple	623	5,088	5,088	92,588	4	5	3[a]	41.66
Staten Island Hospital	Staten Island, N. Y.	...	...	.....	.....	....	..	..	1[a]	...
Ellis Hospital[1]	Schnectady, N. Y.	E. Kellert	219	3,452	.....	216,265	1	3	3[p]	...
St. Joseph's Hospital[1]	Syracuse, N. Y.	H. J. Dick	83	.....	.....	115,854	1	1	1[p]	...
State University of New York Medical Center[1-3]	Syracuse, N. Y.	H. J. Ferguson	262	7,983	7,983	7,983	..	4	2[a]	191.66
Samaritan Hospital[1]	Troy, N. Y.	C. G. Burn	109	2,300	2,164	47,657	1	1	1[a]	225
Grasslands Hospital[1-3]	Valhalla, N. Y.	D. M. Spain	223	1,761	1,761	113,730	1	2	4[p]	125
North Carolina Memorial Hospital	Chapel Hill, N. C.	...	...	.....	.....	....	..	..	4[p]	...
Charlotte Memorial Hospital	Charlotte, N. C.	P. Kimmelstiel	151	6,816	6,666	163,173	3	5	4[p]	150
Duke Hospital[1-3]	Durham, N. C.	W. D. Forbus	320	9,601	9,601	492,864	2	6	4[a]	41.33
Watts Hospital	Durham, N. C.	J. U. Gunter	85	4,497	2,204	138,068	..	1	1[a]	150
North Carolina Baptist Hospital[1-3]	Winston-Salem, N. C.	R. P. Morehead	171	30,494	3,991	259,381	1	4	4[p]	41.66
City Hospital[1-3]	Akron, Ohio	L. Catron	265	6,856	.....	9,106	1	3	2[p]	250
Peoples Hospital[1-3]	Akron, Ohio	G. R. Dochat	136	4,945	3,481	172,405	..	1	2[p]	250
Aultman Hospital[1-3]	Canton, Ohio	D. G. Henderson	253	3,309	3,309	197,474	1	3	4[p]	225
Bethesda Hospital[1-3]	Cincinnati	J. B. Hamblet	207	3,875	3,188	42,872	3	3	3[p]	200
Christ Hospital[1]	Cincinnati	J. W. Leichliter	159	4,220	4,117	141,398	1	1	1[a]	200
Cincinnati General Hospital[1-3]	Cincinnati	E. A. Gall	608	3,633	3,615	117,900	4	6	4[p]	...
Good Samaritan Hospital[1-3]	Cincinnati	W. T. Collins	244	4,582	4,162	9,428	1	3	2[a]	175
Jewish Hospital[1-3]	Cincinnati	P. Wasserman	207	5,683	5,292	174,096	1	2	4[p]	145
City Hospital[1-3]	Cleveland	T. Kinney	409	2,627	2,627	271,218	..	..	4[p]	90
Cleveland Clinic Hospital[1-3]	Cleveland	J. B. Hazard	177	8,246	7,375	479,834	2	7	4[p]	175
Lutheran Hospital[1-3]	Cleveland	W. Sinclair	111	2,726	2,726	72,911	1	1	1[a]	162.50
Mount Sinai Hospital[1-3]	Cleveland	H. Gold	199	5,315	5,300	396,883	..	2	4[p]	...
Saint Luke's Hospital[1-3]	Cleveland	R. Dominguez	263	5,322	5,021	210,643	1	4	4[p]	120
St. Vincent Charity Hospital[1]	Cleveland	P. W. Graff	72	3,252	3,252	100,127	2	4	1[p]	...
University Hospitals[1-3]	Cleveland	A. R. Moritz	519	9,001	9,001	125,599	3	7	4[p]	25
Children's Hospital	Columbus, Ohio	W. Newton	173	616	616	68,596	..	..	2[p]	...
Grant Hospital[1-3-244]	Columbus, Ohio	R. E. Wybel	106	3,979	2,731	64,165	2	3	1[a]	250
University Hospitals University Hospital[1-3]	Columbus, Ohio	E. von Haam	352	7,831	7,831	285,513	2	8	4[p]	150
White Cross Hospital[1-3]	Columbus, Ohio	F. Dick	113	12,706	14,639	263,181	1	2	4[p]	...
Miami Valley Hospital[1-3]	Dayton, Ohio	M. Oosting	352	9,969	9,969	201,804	1	3	4[p]	210
Huron Road Hospital[1-3]	East Cleveland, Ohio	E. Goodsitt	177	4,817	4,817	143,602	1	1	4[p]	210
Mercy Hospital[1-3]	Hamilton, Ohio	K. E. Lande	144	1,497	1,497	101,701	1	1	1[a]	150
St. Rita's Hospital[1-3]	Lima, Ohio	C. L. Blumstein	199	3,279	2,612	115,130	1	1	4[p]	175
Mercy Hospital[1-3]	Toledo, Ohio	E. L. Burns	199	.....	.....	126,852	..	3	4[p]	200
St. Vincent's Hospital[1-3]	*Toledo*, Ohio	*M. F. Vidoli*	*184*	*4,866*	*4,866*	*132,640*	1	1	2[a]	225
Toledo Hospital[1-3]	Toledo, Ohio	B. Steinberg	233	3,984	3,574	103,807	1	2	4[p]	200
St. Elizabeth [illegible]	[illegible] Ohio	J. L. Cricchio	165	6,856	5,378	123,953	2	2	4[p]	...
Youngstown E[illegible]	[illegible] Ohio	A. E. Rappoport	407	6,504	6,504	227,767	2	8	4[p]	125
University Hospitals[1-3]	Oklahoma City	H. C. Hopps	218	3,433	6,504	192,204	2	6	4[p]	50
Hillcrest Medical Center[1]	Tulsa, Okla.	L. Lowbeer	119	.....	3,426	4,636	2	4	2[p]	150
St. John's Hospital[1]	Tulsa, Okla.	E. Palik	117	4,850	4,848	156,004	1	4	4[p]	150
Emanuel Hospital[1-3]	Portland, Ore.	V. D. Sneeden	189	5,290	3,783	178,838	1	1	1[a]	100

Numerical and other references will be found on pages 373 and 374.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Good Samaritan Hospital $^{1-3}$	Portland, Ore.	W. L. Lehman	283	4,557	8,895	192,037	2	8	4^p	100
Providence Hospital $^{1-3}$	Portland, Ore.	J. Minckler	226	6,762	4,877	141,249	1	4	4^p	150
St. Vincent's Hospital ^{1}	Portland, Ore.	F. R. Menne	204	5,254	4,174	190,102	1	4	4^p	165
University of Oregon Medical School Hospitals and Clinics ^{1}	Portland, Ore.	W. Hunter	432	3,160	3,160	204,029	4	8	4^p	85
Abington Memorial Hospital $^{1-3}$	Abington, Pa.	J. Elman	151	3,560	3,550	14,682	1	4	4^p	100
Allentown Hospital $^{1-3}$	Allentown, Pa.	J. J. Wenner	200	3,956	3,471	163,317	1	1	4^p	225
Sacred Heart Hospital ^{1}	Allentown, Pa.	D. E. Stader	119	5,545	5,545	132,501	1	1	2^r	200
St. Luke's Hospital $^{1-3}$	Bethlehem, Pa.	E. J. Benz	206	2,828	2,121	110,441	2	2	4^p	275
Bryn Mawr Hospital $^{1-3}$	Bryn Mawr, Pa.	M. M. Strumia	195	3,963	3,910	205,905	1	4	4^p	100
George F. Geisinger Memorial Hospital $^{1-3}$	Danville, Pa.	H. F. Hunt	108	2,999	2,950	113,654	..	2	4^p	100
Fitzgerald-Mercy Hospital $^{1-3}$	Darby, Pa.	A. Valdes-Dapena M. M. Porter	80	1,812	1,812	99,609	2	6	3^p	100
Hamot Hospital $^{1-3}$	Erie, Pa.	E. L. Armstrong	162	4,767	4,767	141,090	..	4	4^p	200
St. Vincent's Hospital $^{1-3}$	Erie, Pa.	R. B. Eisenberg	179	2,484	2,474	135,860	1	4	4^p	100
Lancaster General Hospital	Lancaster, Pa.	W. M. O'Donnell	186	2,691	2,691	119,680	1	1	2^a	200
St. Joseph's Hospital ^{1}	Lancaster, Pa.	E. E. Ziegler	157	5,577	5,577	97,682	1	2	2^r	300
Albert Einstein Medical Center										
Northern Division $^{1-3}$	Philadelphia	H. Brody	215	4,026	4,026	167,379	3	3	2^p	100
Southern Division $^{1-3}$	Philadelphia	D. R. Meranze	192	3,913	3,913	150,362	4	4	4^p	75
Episcopal Hospital ^{1}	Philadelphia	W. P. Belk	150	2,242	.....	145,161	1	3	3^p	100
Frankford Hospital $^{1-3}$	Philadelphia	W. L. C. Spaeth	124	1,759	1,759	46,397	1	2	2^a	250
Germantown Dispensary and Hospital $^{1-3}$	Philadelphia	F. B. Lynch, Jr.	166	2,772	2,523	103,131	1	3	4^p	150
Graduate Hospital of the University of Pennsylvania $^{1-3}$	Philadelphia	A. Valdes-Dapena	117	3,003	3,003	185,322	2	2	2^a	100
Hahnemann Medical College and Hospital $^{1-3}$	Philadelphia	J. E. Gregory	286	7,244	7,244	243,309	2	6	4^p	50
Hospital of the University of Pennsylvania $^{1-3}$	Philadelphia	R. Horn	332	8,096	8,096	147,484	..	12	4^p	150
Hospital of the Woman's Med. College of Pennsylvania $^{1-3}$	Philadelphia	M. Geiss	48	1,590	1,579	1,590	1	1	2^p	100
Jefferson Medical College Hospital $^{1-3}$	Philadelphia	P. A. Herbut	223	9,661	9,661	305,695	..	..	4^p	50
Lankenau Hospital $^{1-3-20}$	Philadelphia	C. E. Brown	121	2,903	2,903	135,088	..	2	4^p	100
Pennsylvania Hospital $^{1-3}$	Philadelphia	A. R. Crane	198	5,200	5,200	328,083	..	5	4^p	100
Philadelphia General Hospital $^{1-3}$	Philadelphia	G. H. Clark	975	4,611	4,437	499,486	3	7	4^p	112.34
Presbyterian Hospital $^{1-3}$	Philadelphia	R. P. Custer	165	.....	3,037	122,703	7	7	4^p	100
Temple University Hospital $^{1-3}$	Philadelphia	E. E. Aegerter	254	7,676	7,676	467,385	2	8	4^p	50
Allegheny General Hospital $^{1-3}$	Pittsburgh	R. C. Grauer	108	3,314	3,314	151,603	..	2	3^p	250
Children's Hospital $^{1-3}$	Pittsburgh	G. H. Fetterman	119	563	555	81,598	2	5	1^p	50
Mercy Hospital $^{1-3}$	Pittsburgh	H. H. Permar	140	5,509	4,958	32,922	2	2	4^p	150
Montefiore Hospital $^{1-3}$	Pittsburgh	K. Y. Yardumian	143	3,917	3,761	100,240	2	2	3^p	100
Presbyterian Hospital ^{1}	Pittsburgh	E. L. Heller	137	4,846	3,096	113,781	1	3	3	50
St. Francis Hospital $^{1-3}$	Pittsburgh	R. C. Hamilton	153	2,454	2,421	165,160	1	4	4^p	150
St. Margaret Memorial Hospital ^{1}	Pittsburgh	T. J. Moran	41	1,130	1,130	58,321	1	1	1^c	175
Western Pennsylvania Hospital $^{1-3}$	Pittsburgh	R. G. McManus	91	4,236	4,276	183,599	1	3	1^p	225
Community General Hospital $^{1-3}$	Reading, Pa.	H. Cook	99	1,595	1,561	55,188	1	1	1^a	300
Reading Hospital $^{1-3}$	Reading, Pa.	W. P. Jennings	251	3,696	3,559	151,987	1	3	4^p	125
St. Joseph's Hospital ^{1}	Reading, Pa.	G. P. Desjardins	157	2,828	1,967	110,305	1	4	4^p	250
Robert Packer Hospital $^{1-3}$	Sayre, Pa.	C. H. DeWan	135	3,728	3,618	188,574	2	2	3^p	100
Scranton State Hospital $^{1-3}$	Scranton, Pa.	G. Clark	95	2,082	1,116	105,850	1	1	2^p	236
Williamsport Hospital $^{1-3}$	Williamsport, Pa.	M. G. Colvin	121	4,340	4,021	113,873	1	3	2^p	...
York Hospital $^{1-3}$	York, Pa.	L. C. Pusch	143	2,841	2,841	110,167	1	1	4^p	250
Rhode Island Hospital $^{1-3}$	Providence, R. I.	H. Fanger	374	6,532	6,532	209,871	3	6	4^p	83.34
Roper Hospital $^{1-3-24}$	Charleston, S. C.	K. M. Lynch	277	4,864	3,444	174,092	2	6	3	150
Greenville General Hospital	Greenville, S. C.	....	...	.....	.....	....	..	..	3^p	...
Baroness Erlanger Hospital $^{1-3}$	Chattanooga, Tenn.	J. W. Adams, Jr.	197	9,345	9,312	233,676	2	5	2^c	...
Saint Mary's Memorial Hospital $^{1-3}$	Knoxville, Tenn.	G. S. Mahon	73	3,762	3,750	73,014	2	2	2^p	300
Baptist Memorial Hospital $^{1-3}$	Memphis	M. L. Trumbull	183	10,276	9,500	125,000	3	9	4^p	100
City of Memphis Hospitals $^{1-3}$	Memphis	D. H. Sprunt	636	.....	.....	....	5	12	4^p	75
Methodist Hospital	Memphis	W. W. Tribby	104	6,657	5,652	179,766	1	4	1^p	100
St. Joseph Hospital $^{1-3}$	Memphis	W. W. Hurteau	131	4,195	4,005	146,327	3	12	2^a	200
George W. Hubbard Hospital of Meharry Medical College $^{1-3}$	Nashville	J. R. Cuff	123	1,267	1,267	1,267	2	2	2^p	125
Vanderbilt University Hospitals										
Nashville General Hospital $^{1-3}$	Nashville	W. A. DeMonbreun	68	1,619	1,539	120,619	1	2	3^p	50
Vanderbilt University Hospital $^{1-3-267}$	Nashville	E. W. Goodpasture	235	4,702	4,684	172,712	4	4	3^a	50
Brackenridge Hospital ^{1}	Austin, Texas	S. W. Bohls P. Flynn	78	2,192	1,712	42,770	1	2	2^a	...
Baylor University Hospital $^{1-3}$	Dallas, Texas	J. Hill	181	11,506	11,306	240,897	1	4	4^p	75
Parkland Hospital $^{1-3}$	Dallas, Texas	E. E. Muirhead	365	3,092	7,782	297,124	2	4	4^p	50
St. Paul's Hospital $^{1-3}$	Dallas, Texas	J. L. Goforth	101	4,705	4,086	119,987	2	6	3^p	100
Harris Hospital $^{1-3}$	Fort Worth, Texas	C. T. Ashworth C. D. Fitzwilliam	126	5,629	4,171	182,817	..	2	4^p	125
University of Texas Medical Branch Hospitals $^{1-3}$	Galveston, Texas	P. Brindley	408	4,792	6,446	251,784	2	8	4^p	...
Hermann Hospital $^{1-3}$	Houston, Texas	W. G. Brown	241	7,548	7,548	261,353	1	4	4^p	100
Jefferson Davis Hospital ^{1}	Houston, Texas	S. A. Wallace	496	4,353	4,353	265,723	1	4	4^p	...
St. Joseph's Infirmary ^{3}	Houston, Texas	P. M. Marcuse	187	8,131	5,375	228,327	1	1	2^a	250
M. D. Anderson Hospital for Cancer Research $^{1-3-273}$	Houston, Texas	W. O. Russell	217	2,883	2,883	52,554	2	10	2^p	...
Baptist Memorial Hospital $^{1-3}$	San Antonio, Texas	A. O. Severance	161	4,683	4,447	153,243	1	3	4^p	200
Robert B. Green Memorial Hospital $^{1-3}$	San Antonio, Texas	D. A. Todd	95	.....	.....	107,085	1	2	2^p	125
Santa Rosa Hospital ^{3}	San Antonio, Texas	J. M. Moore S. W. Bohls	110	4,475	3,371	153,276	1	3	3^p	200
St. Benedict's Hospital $^{1-3}$	Ogden, Utah	R. C. Ellis	82	2,406	1,938	53,778	1	1	1^p	150
Dr. W. H. Groves Latter-Day Saints Hospital	Salt Lake City	J. H. Carlquist	154	.....	.....	98,393	1	1	1^p	160
Holy Cross Hospital $^{1-3}$	Salt Lake City	C. McNeil	75	6,825	2,790	77,637	2	4	1^p	175
Salt Lake County General Hospital $^{1-3}$	Salt Lake City	F. D. Gunn	237	1,587	1,517	182,158	..	3	4^p	...
Bishop Degoesbriand Hospital $^{1-3}$	Burlington, Vt.	E. Stark	68	987	987	37,514	..	..	1^p	50
Mary Fletcher Hospital $^{1-3-288}$	Burlington, Vt.	E. Woll R. Cash	117	3,153	3,133	55,229	2	6	2^p	100
University of Virginia Hospital $^{1-3}$	Charlottesville, Va.	O. B. Bobbitt	233	12,174	12,174	187,463	3	7	4^p	150
Memorial Hospital ^{1}	Danville, Va.	J. W. Hooker	122	3,160	3,160	71,160	1	1	2^a	...
Lynchburg General Hospital $^{1-3}$	Lynchburg, Va.	S. M. Bouton	65	2,220	1,865	46,251	..	3	1^p	250
De Paul Hospital $^{1-3}$	Norfolk, Va.	A. F. Strauss	191	6,458	6,363	157,034	1	2	2^r	225
Norfolk General Hospital $^{1-3}$	Norfolk, Va.	E. O. Levy A. J. Rawson	239	6,686	9,816	157,915	1	3	4^p	250
Medical College of Virginia, Hospital Division $^{1-3-17}$	Richmond, Va.	F. L. Apperly	451	8,465	8,465	424,741	..	8	3	...
Doctors Hospital ^{3}	Seattle, Wash.	G. E. Tooley	142	5,493	3,743	73,306	1	1	2^a	125
King County Hospital, Unit No. 1 (Harborview) ^{1}	Seattle, Wash.	C. R. Jensen	700	3,014	2,912	207,673	..	1	3	110
Providence Hospital $^{1-3}$	Seattle, Wash.	D. G. Mason	188	6,197	4,025	125,161	1	1	2^a	200
Swedish Hospital $^{1-3}$	Seattle, Wash.	P. Lund	216	5,993	5,896	169,670	2	2	1	100
Deaconess Hospital $^{1-3}$	Spokane, Wash.	T. E. Ludden	179	5,219	4,282	91,651	1	4	4^p	...
Sacred Heart Hospital $^{1-3}$	Spokane, Wash.	J. E. Hill	159	5,570	5,461	138,780	1	1	2^a	200
St. Luke's Hospital $^{1-3}$	Spokane, Wash.	O. O. Christianson	119	2,183	1,509	131,907	1	1	1^a	150
St. Joseph Hospital $^{1-3}$	Tacoma, Wash.	C. R. McColl	128	4,555	4,434	84,738	2	4	2^a	200
Tacoma General Hospital $^{1-3}$	Tacoma, Wash.	C. P. Larson	292	7,082	6,853	86,484	1	2	4^p	200
Charleston General Hospital ^{1}	Charleston, W. Va.	W. Putschar	131	2,262	2,234	68,674	1	1	4^p	160
St. Joseph's Hospital $^{1-3}$	Parkersburg, W. Va.	A. J. Bruecken, Jr.	40	2,873	1,820	83,787	1	1	2^p	...

Numerical and other references will be found on pages 373 and 374.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Ohio Valley General Hospital	Wheeling, W. Va.	...	...	.....	.....	....	..	..	3P	..
Madison General Hospital [1-3]	Madison, Wis.	L. McGary	96	4,337	4,337	79,026	..	2	4P	150
University Hospitals [1-3]	Madison, Wis.	D. M. Angevine	299	4,317	4,293	207,903	1	3	4P	50
St. Joseph's Hospital [1]	Marshfield, Wis.	J. B. Miale	122	1,739	1,420	75,000	1	3	3P	300
Columbia Hospital [1-3]	Milwaukee	G. Ritchie	...	.....	.....	....	1	3	4P	125
Milwaukee County Hospital [1-3]	Milwaukee	J. F. Kuzma	489	3,190	3,104	285,059	2	6	4P	208.92
Milwaukee Hospital [1-3]	Milwaukee	E. A. Birge	116	4,508	3,687	88,048	1	1	3P	150
St. Joseph's Hospital [1-3]	Milwaukee	...	217	4,592	3,446	123,076	1	4	4P	200
St. Mary's Hospital [1]	Milwaukee	S. B. Pessin	136	4,205	2,538	82,738	..	1	3P	175
Gorgas Hospital [3]	Ancon, C. Z.	N. W. Elton	296	2,898	2,884	273,890	1	4	4P	282.55
Queen's Hospital [1-3]	Honolulu, T. H.	W. H. Civin	238	5,091	4,418	148,781	1	4	4P	135
San Juan City Hospital [1-3]	San Juan, P. R.	E. Koppisch	176	2,737	2,737	245,280	1	1	3a	150

18. PEDIATRICS

The following services have been approved by the Council and the American Board of Pediatrics

Hospitals, 252; Assistant Residencies and Residencies, 1,336

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY										
Letterman Army Hospital [3-66]	San Francisco	W. M. Ewards	1,243	7,683	28	26	2	4	2	...
Fitzsimons Army Hospital [66]	Denver, Colo.	F. E. Simpson	917	31,772	8	6	2	4	2	...
Army Medical Center [1-66-67]		O. C. Bruton	1,244	19,890	10	8	2	4	2	...
Brooke Army Medical Center		L. J. Geppert	1,309	19,808	36	33	1	3	2	...
UNITED STATES NAVY										
U. S. Naval Hospital [1]	Oakland, Calif.	D. W. Sherwood	1,219	16,620	16	15	..	2	2	...
U. S. Naval Hospital [1]	Bethesda, Md.	T. E. Cone	512	14,352	9	7	..	4	2	...
U. S. Naval Hospital [1]	Chelsea, Mass.	M. Kurzrok	918	14,806	14	10	..	3	2	...
U. S. Naval Hospital [1]	Philadelphia	S. J. Winter	974	20,220	12	7	..	3	2	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE										
Freedmen's Hospital [1-3-62-64]	Washington, D. C.	R. B. Scott	745	3,914	66	29	..	5	2	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Children's Hospital [3]	[illegible]	H. Kennedy	2,896	7,908	52	32	2	3	2	200
Jefferson-Hillman Hospital		K. Hare	2,315	6,189	79	40	3	6	2	...
Lloyd Noland Hospital [1-3]		G. C. McCullough	911	19,766	13	7	2	4	1	225
City Hospital	[illegible]	J. MacBell	1,578	3,556	38	17	1	1	1	175
University Hospital [1]	Little Rock, Ark.	K. Dodd	692	5,206	75	38	0	1	2	...
Kern General Hospital [1-3]	Bakersfield, Calif.	J. Almklov	1,008	14,394	47	37	2	6	2	325
San Joaquin General Hospital [1-3]	French Camp, Calif.	W. T. Auld	2,182	3,235	31	23	1	1	1	235
General Hospital of Fresno County	Fresno, Calif.	J. E. Young	1,163	7,415	65	32	2	2	1	231
Seaside Memorial Hospital	Long Beach, Calif.	S. Woolington	3,562	11,479	45	15	1	1	1	150
California Babies' and Children's Hospital [28]	Los Angeles	T. L. Birnberg	3,899	20,532	57	27	1	2	1	150
Childrens Hospital [36]	Los Angeles	M. J. Carson	4,319	40,000	139	122	11	30	2	80
Los Angeles County Hospital [1-29]	Los Angeles	T. H. Goldman	4,521	17,203	106	72	..	11	2	190
Queen of Angels Hospital [1-3]	Los Angeles	R. Eldredge	1,873	2,510	23	16	1	2	2	150
White Memorial Hospital [1-3-31]	Los Angeles	B. Mirman	716	16,183	32	20	2	4	2	146.25
Children's Hospital of East Bay [1-3]	Oakland, Calif.	L. Luzzatti	7,386	38,497	51	99	6	12	2	170
Highland-Alameda County Hospital [1-3]	Oakland, Calif.	M. H. Schwartz	1,405	7,105	47	16	1	2	2	...
Kaiser Foundation Hospital [1-3]	Oakland, Calif.	A. L. King	615	47,742	13	11	6	6	1	...
San Diego County General Hospital [1-3]	San Diego, Calif.	F. H. Fehlmann	1,059	774	58	17	1	1	1	150
Children's Hospital [1-3]	San Francisco	H. E. Thelander	2,107	4,068	8	6	3	5	2	125
Mount Zion Hospital [1-3]	San Francisco	S. J. Robinson	689	1,757	13	13	..	1	1	100
St. Mary's Hospital [1-3]	San Francisco	R. G. Flood	1,708	4,215	9	7	1	2	2	150
Stanford University Hospitals [1-3]	San Francisco	J. A. Anderson	516	13,105	19	16	3	6	2	50
University of California Hospital [1-3-37]	San Francisco	W. C. Deamer	1,691	13,211	49	41	..	4	2	87
Harbor General Hospital [1-3-81]	Torrance, Calif.	A. J. Moss	1,158	5,128	30	11	2	4	2	190
Children's Hospital [1-3-51-52]	Denver, Colo.	W. W. Barber	8,206	3,952	106	89	6	10	2	...
University of Colorado Medical Center		...	.....	.....	..	..	8	16	..	...
Colorado General Hospital [1-3-22]	Denver, Colo.	R. H. Alway	471	11,249	46	35	..	..	2	...
Denver General Hospital [1-3-22]	Denver, Colo.	M. M. Ginsburg	1,092	10,955	21	17	..	..	2	...
Hartford Hospital [1-3]	Hartford, Conn.	J. B. Griggs	1,025	236	25	22	1	2	2	50
St. Francis Hospital [1-3]	Hartford, Conn.	T. Murphy	911	777	19	15	2	2	..	100
Grace-New Haven	Haven, Conn.	M. J. E. Senn	3,276	10,205	36	30	5	13	2	50
Hospital of St.	Haven, Conn.	P. McAlenney	2,021	588	..	..	1	2	2	100
Waterbury Hospital [1]	Waterbury, Conn.	A. S. Brown	2,059	797	11	9	1	2	1	125
Delaware Hospital [1-3]	Wilmington, Del.	R. O. Y. Warren	2,066	1,792	59	38	2	3	2	160
Children's Hospital	Washington, D. C.	E. P. Copeland	3,763	37,958	..	..	12	19	2	30
Gallinger Municipal	Washington, D. C.	L. Hoeck	1,799	18,613	55	34	6	12	2	...
Georgetown University Hospital [1-3]	Washington, D. C.	F. Burke	995	2,443	18	15	2	4	1	...
Providence Hospital [1-3]	Washington, D. C.	W. O'Donnell	1,937	1,793	4	11	2	2	1	200
Duval Medical Center [1-3]	Jacksonville, Fla.	L. W. Holloway	630	4,879	36	21	1	1	1	150
St. Vincent's Hospital [1-3]	Jacksonville, Fla.	L. Holloway	2,390	.....	25	12	1	1	1	135
Jackson Memorial Hospital [1-70]	Miami, Fla.	W. W. Quillian	1,460	3,836	92	39	2	4	2	75
Crawford W. Long Memorial Hospital [1-3-72]	Atlanta, Ga.	L. H. Muse	1,385	4,019	33	16	5	6	2	87.50
Grady Memorial Hospital [1-3]	Atlanta, Ga.	R. W. Blumberg	917	56,597	75	51	4	10	2	20
Henrietta Egleston Hospital for Children [1-3]	Atlanta, Ga.	M. H. Roberts	1,205	.....	32	24	..	6	1	100
University Hospital	Augusta, Ga.	H. B. O'Rear	1,969	.....	76	29	2	4	2	160
Children's Memorial Hospital [1-3]	Chicago	J. A. Bigler	5,149	45,416	77	64	11	15	2	30
Cook County Hospital [1-3]	Chicago	A. Levinson	3,128	5,219	476	330	15	15	2	30
Illinois Masonic Hospital [1-3]	Chicago	J. Aronow	1,537	2,363	8	5	1	1	1	85
Mercy Hospital [87]	Chicago	H. W. Elghammer	1,492	3,375	30	21	1	2	2	100
Michael Reese Hospital [1-3]	Chicago	B. Kagan	6,701	22,364	270	182	4	12	2	50
Mount Sinai Hospital [1-3]	Chicago	B. M. Gasul	2,887	5,838	58	47	1	2	2	100
Presbyterian Hospital [1-3]	Chicago	H. N. Sanford	1,446	8,899	61	52	1	2	2	125
Provident Hospital [1-3]	Chicago	R. N. Jefferson	769	2,004	9	9	1	2	2	200
St. Joseph Hospital [1-3]	Chicago	H. Jacobs	1,175	470	13	11	1	1	1	200
St. Luke's Hospital [1-3]	Chicago	A. Biggs	450	7,166	15	12	1	2	2	50
University of Chicago Clinics [1-3]	Chicago	F. H. Wright	1,149	19,912	65	46	7	15	2	175
University of Illinois Research and Educational Hospitals [1-3-89]	Chicago	H. N. Sanford	433	11,358	27	26	2	6	2	60
Evanston Hospital [1-3]	Evanston, Ill.	A. L. Newcomb	1,333	1,594	9	34	1	1	1	50
St. Francis Hospital [1-3]	Evanston, Ill.	N. G. Shaw	2,476	572	22	15	1	1	1	150
Little Company of Mary Hospital [1-3]	Evergreen Park, Ill.	E. G. Lawler	3,310	1,667	23	17	3	3	1	175

Numerical and other references will be found on pages 373 and 374.

18. PEDIATRICS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
West Suburban Hospital	Oak Park, Ill.	C. D. Butler	2,114	1,552	11	9	1	1	1	150
St. Francis Hospital[1-3]	Peoria, Ill.	C. E. Sibilsky	1,444	1,247	61	40	2	2	1	...
Indianapolis General Hospital[1-102-103]	Indianapolis	I. Rosenbaum	1,608	13,460	13	7	1	2	2	150
Indiana University Medical Center[1]	Indianapolis	L. T. Meiks	3,713	17,775	185	129	5	10	2	150
St. Vincent's Hospital[1-10]	Indianapolis	B. K. Rust	1,015	3,767	19	15	1	1	1	250
Iowa Methodist Hospital[1-3-10]	Des Moines	L. F. Hill	4,512	13,330	57	43	5	8	2	100
University Hospitals[1-3]	Iowa City, Iowa	C. D. May	1,503	2,889	53	41	4	6	2	75
University of Kansas Medical Center[1-3]	Kansas City, Kans.	H. C. Miller	1,255	10,380	65	53	4	8	2	125
St. Joseph Infirmary[1-3]	Louisville, Ky.	O. S. Ogden	2,833	425	45	27	2	3	2	...
University of Louisville Hospitals										
Children's Hospital[1-3-111]	Louisville, Ky.	L. T. Davidson	2,784	.....	105	55	10	10	2	75
Louisville General Hospital[1-3-110]	Louisville, Ky.	L. T. Davidson	1,317	15,791	100	57	10	10	2	75
Charity Hospital of Louisiana										
Independent Unit[1-3]	New Orleans, La.	W. C. Rivenbark	811	5,061	41	24	3	5	2	40
Louisiana State University Unit[1-3]	New Orleans, La.	N. K. Ordway	1,565	11,893	59	38	6	11	2	40
Tulane University Unit[1-3]	New Orleans, La.	R. V. Platou	1,518	9,251	47	35	6	11	2	40
Hotel Dieu Sisters' Hospital[1-3]	New Orleans, La.	R. G. Aleman	2,127	1,269	8	6	2	2	1	200
Southern Baptist Hospital[1-3-117]	New Orleans, La.	W. Sako	.....	.....	17	..	1	2	1	225
Touro Infirmary[1-3-116]	New Orleans, La.	S. Chapman	753	6,976	12	10	1	2	2	35
Confederate Memorial Medical Center	Shreveport, La.	C. H. Webb	2,058	2,353	87	29	2	6	2	60
Central Maine General Hospital[1-3]	Lewiston, Maine	H. C. Thacher	1,133	432	21	16	..	1	1	150
Baltimore City Hospitals[1-3]	Baltimore, Md.	H. E. Harrison	1,085	30,692	109	93	6	11	2	75
Johns Hopkins Hospital[1-3-119]	Baltimore, Md.	F. F. Schwentker	1,579	34,090	160	120	..	7	2	...
Mercy Hospital[1-3]	Baltimore, Md.	F. B. Smith	561	2,211	31	15	1	2	1	250
Sinai Hospital[1-3]	Baltimore, Md.	H. H. Gordon	462	4,390	63	52	3	5	2	85
Union Memorial Hospital[1-3]	Baltimore, Md.	W. C. Stiller, Jr.	562	1,652	17	10	2	2	1	65
University Hospital[1-3-121-130]	Baltimore, Md.	J. E. Bradley	621	9,317	63	39	2	7	2	50
Boston City Hospital[1-3]	Boston, Mass.	E. Friedman	2,375	12,837	142	30	6	12	2	112
Boston Floating Hospital[1-3-143]	Boston, Mass.	J. M. Baty	2,150	.....	47	35	6	7	2	50
Children's Medical Center[1-3]	Boston, Mass.	C. A. Janeway	3,110	23,547	246	198	4	20	2	50
Massachusetts General Hospital[1-3-202]	Boston, Mass.	A. M. Butler	1,125	4,620	25	17	5	6	2	100
Worcester City Hospital[1-3]	Worcester, Mass.	A. S. O'Connor	813	.....	18	7	1	1	1	200
University Hospital[1-3]	Ann Arbor, Mich.	J. L. Wilson	1,251	7,362	75	54	12	22	2	131.15
Children's Hospital[1-3-148]	Detroit, Mich.	P. V. Wooley, Jr.	6,757	70,100	331	209	12	25	2	100
Harper Hospital[1-3]	Detroit, Mich.	E. E. Martmer	2,008	1,060	97	59	1	2	1	225
Henry Ford Hospital[1-3-140]	Detroit, Mich.	J. A. Johnston	1,818	26,090	35	23	5	7	2	225
Providence Hospital[1-3]	Detroit, Mich.	L. P. Sonda	2,361	.....	26	17	1	1	1	250
Hurley Hospital[1-3]	Flint, Mich.	L. Jones	1,818	.....	26	14	1	1	2	300
St. Mary's Hospital[1]	Grand Rapids, Mich.	J. C. Montgomery	850	131	25	14	1	1	1	200
Saginaw General Hospital[1-3]	[illegible]	R. M. Heavenrich	3,036	2,111	45	38	1	2	2	320
Minneapolis General Hospital	[illegible]	R. A. Ulstrom	626	7,500	31	20	3	5	2	169
Northwestern Hospital[1-3]	[illegible]	E. S. Platou	1,472	.....	22	14	1	1	1	200
St. Barnabas Hospital[1-3]	[illegible]	I. H. Moore	2,162	.....	13	12	1	1	1	175
University of Minnesota Hos[illegible]	[illegible]	I. McQuarrie	1,915	8,035	81	72	..	12	2	150
Mayo Foundation[1-3]	Rochester, Minn.	R. L. J. Kennedy	3,239	18,208	77	66	8	23	2	150
Children's Mercy Hospital[1-3]	Kansas City, Mo.	J. M. Kantor	1,750	13,217	80	50	4	4	1	125
Kansas City General Hospital No. 1	Kansas City, Mo.	E. L. Glasscock	570	3,268	15	12	1	2	1	75
Homer G. Phillips Hospital[1-3]	St. Louis, Mo.	P. J. White	1,875	10,070	95	26	6	14	2	190
Jewish Hospital[1-3]	St. Louis, Mo.	M. Deutsch	1,117	2,068	9	5	1	1	1	100
St. Louis Children's Hospital[1-104]	St. Louis, Mo.	A. F. Hartmann	3,853	37,910	148	108	2	2	2	25
St. Louis City Hospital[1-3]	St. Louis, Mo.	D. Thurston V. Peden	1,742	12,136	77	25	..	8	2	137.75
St. Mary's Group of Hospitals[1-3-161-162-167]	St. Louis, Mo.	P. G. Danis	2,009	12,388	60	35	4	12	2	65
Creighton Memorial St. Joseph's Hospital[1-169]	Omaha, Neb.	J. H. Murphy	1,219	731	10	14	1	2	2	150
[illegible]ital[1-3-169]	Omaha, Neb.	H. M. Jahr	515	2,503	16	15	2	5	2	175
[illegible]spital[1-3]	Hanover, N. H.	C. C. Stewart, III	883	4,475	15	13	2	2	1	170
[illegible]	Camden, N. J.	V. DelDuca	812	766	28	18	1	1	1	200
[illegible]ospital[1-3]	Jersey City, N. J.	C. P. DeFuccio	1,498	7,602	16	4	3	6	2	...
[illegible]l[1-3-175]	Newark, N. J.	M. G. Gregory	3,755	4,585	32	26	2	3	1	150
[illegible]	Newark, N. J.	H. A. Murray	2,056	1,917	42	25	1	2	2	...
[illegible]	Albany, N. Y.	E. S. Goodwin	767	8,032	19	15	3	4	2	135
St. Peter's Hospital[1]	Albany, N. Y.	H. F. Leahy	1,552	92	14	13	1	1	1	175
Beth-El Hospital[1-3]	Brooklyn, N. Y.	B. Schick	327	6,126	20	..	2	2	2	...
Brooklyn Hospital[1-3]	Brooklyn, N. Y.	T. M. Lamb	575	6,414	10	7	1	2	1	100
Coney Island Hospital[1-3]	Brooklyn, N. Y.	S. Nussbaum	709	.....	18	13	2	2	2	98.30
Cumberland Hospital[1-3-184]	Brooklyn, N. Y.	T. B. Givan	853	9,719	13	12	3	4	2	99
Greenpoint Hospital[1-3]	Brooklyn, N. Y.	I. Schiff	567	5,557	48	37	2	3	1	...
Jewish Hospital[1-3-184]	Brooklyn, N. Y.	B. Kramer	1,370	5,227	37	21	5	11	2	75
Kings County Hospital										
County Division[1-3]	Brooklyn, N. Y.	L. Mullin	1,248	2,972	45	25	3	6	2	98
University Division[1-3]	Brooklyn, N. Y.	L. Krahulik	3,059	7,550	212	113	3	6	2	98
Long Island College Hospital[1-3]	Brooklyn, N. Y.	C. A. Weymuler	538	7,226	18	5	2	4	2	75
Maimonides Hospital[1-3-184-200]	Brooklyn, N. Y.	J. Meisel H. Wexler	787	2,915	20	11	3	4	2	35
Methodist Hospital[1-3]	Brooklyn, N. Y.	W. F. Watton	591	3,170	16	11	1	2	1	75
Nor[illegible]ses' Home and Hosp.[1-3]	Brooklyn, N. Y.	J. A. Monfort	2,730	718	34	28	1	2	1	100
St. [illegible]	Brooklyn, N. Y.	J. P. Lombard	502	2,087	16	8	2	2	1	125
St. [illegible][1-3]	Brooklyn, N. Y.	J. Battaglia	514	3,589	38	22	1	1	1	...
St. [illegible]	Brooklyn, N. Y.	K. G. Jennings	460	1,325	14	9	1	2	1	175
Wyckoff Heights Hospital[1-3-204]	Brooklyn, N. Y.	V. Larkin	376	907	6	1	2	2	1	100
Children's Hospital[1-3]	Buffalo, N. Y.	M. I. Rubin	2,212	16,848	99	76	15	25	2	75
Edward J. Meyer Memorial Hospital[1]	Buffalo, N. Y.	F. J. Gustina	1,240	9,225	18	10	1	3	2	179
Mary Imogene Bassett Hospital[1-3-185]	Cooperstown, N. Y.	T. C. Goodwin	283	5,650	6	6	..	1	1	83.33
Flushing Hospital and Dispensary[1-3]	Flushing, N. Y.	H. T. Vogel	457	3,326	87	43	1	2	1	125
Meadowbrook Hospital[1-3]	Hempstead, N. Y.	M. C. Hill	1,240	55	64	45	1	2	2	225
Mary Immaculate Hospital[1-3]	Jamaica, N. Y.	A. A. Trivilino V. G. Tosti	2,929	1,467	46	23	1	1	1	110
Queens General Hospital[1-3]	Jamaica, N. Y.	H. A. Reisman	947	5,186	94	70	3	6	2	98.33
Bellevue Hospital Center, Division III New York University College of Medicine[1-3-200]	New York City	L. E. Holt, Jr.	1,456	49,388	107	53	6	6	2	98
Beth Israel Hospital[1-3]	New York City	P. Cohen	506	3,044	13	11	2	2	2	75
Bronx Hospital[1-3]	New York City	J. H. Lapin	653	4,721	15	10	1	2	2	75
Flower and Fifth Avenue Hospitals[1-3]	New York City	L. B. Slobody	1,046	3,192	36	20	2	4	2	...
Fordham Hospital[1-3]	New York City	J. Golomb	1,499	3,524	41	29	2	3	2	98.33
Harlem Hospital[1-3]	New York City	H. J. Cohen	720	.....	33	10	2	4	2	98.32
Lenox Hill Hospital[1-3]	New York City	A. F. Anderson	633	3,562	22	16	2	3	2	180
Lincoln Hospital[1-3]	New York City	H. S. Altman	1,386	12,748	84	48	2	5	2	65
Metropolitan Hospital[1-3]	New York City	L. B. Slobody	1,357	16,678	43	30	5	8	2	98
Misericordia Hospital	New York City	E. Rooney	868	.....	17	9	..	..	1	...
Morrisania City Hospital[1-3]	New York City	H. D. Pasachoff	882	6,367	27	14	1	3	2	98

Numerical and other references will be found on pages 373 and 374.

18. PEDIATRICS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Mount Sinai Hospital[1-3-200]	New York City	H. L. Hodes	2,132	22,207	57	37	4	9	2	50
New York City Hospital[1-3]	New York City	E. E. Amerman	2,372	12,395	56	44	1	4	2	150
New York Foundling Hospital[1-3]	New York City	A. J. Vignec	1,218	4,648	..	..	16	16	½	100
New York Hospital[1-3-101]	New York City	S. G. Levine	1,366	29,587	105	93	9	17	2	25
New York Infirmary[1-3]	New York City	R. M. Bakwin	73	1,865	2	2	1	1	1	100
New York University-Bellevue Medical Center		(See also Bellevue Hosptial Center, Division III)								
University Hospital	New York City	A. DeSanctis	611	9,192	25	20	3	6	2	85
Presbyterian Hospital (Babies Hospital)[1-3]	New York City	R. McIntosh	4,360	45,339	197	160	7	18	2	208.33
Roosevelt Hospital[1-3-210]	New York City	E. N. Joyner, III	516	5,061	8	4	2	4	1	116
St. Clare's Hospital[1]	New York City	C. H. O'Regan	872	6,162	48	20	3	3	2	50
St. Luke's Hospital[1-3-200]	New York City	F. C. Hunt	672	7,282	10	6	2	4	2	60
St. Vincent's Hospital[1-3]	New York City	A. J. Vignec	3,253	10,288	104	71	4	5	2	50
Sydenham Hospital[1-3]	New York City	E. Schiff	552	3,538	11	6	1	1	1	150
Genesee Hospital[1-3]	Rochester, N. Y.	J. Glaser	673	1,620	8	8	1	2	2	75
Rochester General Hospital[1-3]	Rochester, N. Y.	F. W. Bush	706	2,200	34	27	1	2	1	100
Strong Memorial-Rochester Municipal Hosps.[1-3-212-214]	Rochester, N. Y.	W. L. Bradford	1,349	7,524	57	48	..	8	2	41.66
St. Vincent's Hospital[1-3]	Staten Island, N. Y.	G. W. McCormick	1,720	630	10	7	1	1	1	150
Sea View Hospital[1-3]	Staten Island, N. Y.	B. Ratner	504	.....	4	1	5	5	1	150
St. Joseph's Hospital[1-3]	Syracuse, N. Y.	G. Murdock	2,661	1,802	4	1	2	2	1	190
State University of New York Medical Center[1-3-303]	Syracuse, N. Y.	T. C. Wyatt	2,820	5,096	68	55	4	12	2	191.66
Grasslands Hospital[1-3]	Valhalla, N. Y.	F. D. Barnes	360	1,736	14	11	1	3	2	125
North Carolina Memorial Hospital[1-3-233]	Chapel Hill, N. C.	E. C. Curnen	182	.....	5	5	3	7	2	146
Charlotte Memorial Hospital	Charlotte, N. C.	C. H. Gay	626	4,891	20	13	1	2	2	150
Duke Hospital[1-3-231-232]	Durham, N. C.	W. C. Davison	1,159	16,586	77	38	6	8	2	25
Watts Hospital[1]	Durham, N. C.	A. H. London	746	1,158	20	7	..	1	2	150
Rex Hospital[1-3]	Raleigh, N. C.	C. R. Bugg	2,314	.....	20	7	..	1	1	200
Babies Hospital[1-3]	Wilmington, N. C.	J. B. Sidbury	1,760	3,500	17	9	2	2	1	200
City Memorial Hospital[1-3]	Winston-Salem, N. C.	F. A. Blount	3,245	183	28	5	1	1	1	200
North Carolina Baptist Hospital[1-3]	Winston-Salem, N. C.	R. B. Lawson	1,245	3,251	57	34	2	8	2	41.66
University of Cincinnati										
Children's Hospital[1-3-234-235]	Akron, Ohio	J. G. Kramer	3,194	10,482	128	103	7	8	2	250
Children's Hospital[1]	Cincinnati	A. A. Weech	.....	.....	..	..	6	13	2	45
Cincinnati General Hospital[1-3]	Cincinnati	A. A. Weech	599	8,439	73	51	4	7	2	45
Good Samaritan Hospital[1-3-237]	Cincinnati	E. A. Wagner	1,750	.....	28	15	1	2	1	175
City Hospital[1-3]	Cleveland	F. C. Robbins	525	1,958	80	41	..	4	2	100
Cleveland Clinic Hospital	Cleveland	R. D. Mercer	424	3,498	4	3	1	3	2	175
University Hospitals[1-3]	Cleveland	W. M. Wallace	3,151	21,484	151	112	6	15	2	25
Children's Hospital[1-3]	Columbus, Ohio	E. Baxter	3,473	.....	213	140	..	22	2	...
Mercy Hospital[1-3]	Toledo, Ohio	L. I. Clark	2,174	2,372	14	10	..	1	1	200
University Hospitals[1-3]	Oklahoma City	C. H. Hall	1,219	9,703	108	63	3	6	2	50
Hillcrest Memorial Hospital[1]	Tulsa, Okla.	H. Graham	1,898	.....	30	8	1	2	2	150
St. John's Hospital[1]	Tulsa, Okla.	M. J. Searle	4,043	.....	40	21	1	1	1	150
University of Oregon Medical School										
Hospitals and Clinics[1]	Portland, Ore.	A. J. Hill	963	10,616	58	55	3	6	2	85
Abington Memorial Hospital[1-3]	Abington, Pa.	T. S. Wilder	405	344	6	5	2	2	1	100
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	E. F. Rabe	717	5,936	29	16	1	1	1	100
Albert Einstein Medical Center										
Northern Division[1-3]	Philadelphia	A. M. Dannenberg	1,205	453	17	10	1	2	1	100
Southern Division[1-3]	Philadelphia	I. P. Morris M. Malen	271	2,211	6	3	1	1	1	75
Children's Hospital[1-3]	Philadelphia	J. Stokes, Jr.	1,823	22,955	67	59	9	21	2	...
Children's Hospital of the Mary J. Drexel Home	Philadelphia	E. Bacon	344	1,823	4	3	2	2	1	100
Germantown Dispensary and Hospital[1-3]	Philadelphia	P. S. Barba	1,169	2,285	66	20	1	3	1	150
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	J. Ritter	454	934	5	3	1	1	1	...
Hahnemann Medical College and Hospital[1-3-258]	Philadelphia	C. C. Fischer	586	6,934	18	12	3	6	2	50
Hospital of the University of Pennsylvania[1-3]	Philadelphia	P. Gyorgy	2,693	3,612	50	41	..	4	2	...
Hospital of the Woman's Medical College of Pa.[1-3-256]	Philadelphia	J. Crump	554	1,919	21	14	1	2	2	60
Jefferson Medical College Hospital[1-3]	Philadelphia	C. F. McKhann	674	9,816	33	15	..	..	2	...
Philadelphia General Hospital[1-3-256]	Philadelphia	E. L. Noone	1,719	9,432	144	62	3	6	2	112.34
St. Luke's and Children's Medical Center[1-3]	Philadelphia	H. A. Agerty	621	4,100	13	11	2	2	1	100
Temple University Hospitals										
St. Christopher's Hospital for Children[1-3-256]	Philadelphia	W. E. Nelson	3,397	43,224	65	56	7	18	2	50
Temple University Hospital[1-3-256]	Philadelphia	W. E. Nelson	17	7,526	1	1	..	..	..	...
Allegheny General Hospital[1-3]	Pittsburgh	T. O. Elterich	494	2,383	16	4	..	2	1	150
Children's Hospital[1-3]	Pittsburgh	E. R. McCluskey	2,802	14,900	129	106	8	17	2	58.33
Western Pennsylvania Hospital[1-3]	Pittsburgh	H. C. Flood	541	1,100	14	3	1	1	1	225
Robert Packer Hospital[1-3]	Sayre, Pa.	D. S. Motsay	618	2,332	28	12	1	2	2	150
Charles V. Chapin Hospital[1-3]	Providence, R. I.	H. G. Calder	1,596	1,369	10	7	4	4	1	150
Rhode Island Hospital[1-3-263]	Providence, R. I.	R. M. Lord	1,307	3,871	25	11	2	4	2	60
Roper Hospital[1-3]	Charleston, S. C.	M. W. Beach	1,790	9,893	67	21	1	4	2	83
Columbia Hospital	Columbia, S. C.	E. M. Madden	2,476	.....	76	30	1	2	2	150
T. C. Thompson C.	ttanooga, Tenn.	H. J. Starr	.....	.....	..	..	..	..	1	...
Knoxville General Hospital	Knoxville, Tenn.	J. Chesney	580	1,468	19	7	..	1	1	125
Baptist Memorial Hospital	Memphis, Tenn.	A. Jones	793	340	21	3	1	1	1	100
City of Memphis Hospitals	Memphis, Tenn.	F. T. Mitchell	8,162	.....	263	193	3	6	2	35
Methodist Hospital	Memphis, Tenn.	G. Levy	1,924	.....	23	8	1	1	1	100
St. Joseph Hospital[1-3-264]	Memphis, Tenn.	H. J. Jacobson	1,477	450	30	13	1	2	2	200
George W. Hubbard Hospital of										
Meharry Medical College[1-3]	Nashville, Tenn.	E. P. Crump	859	10,706	52	30	3	6	2	125
St. Thomas Hospital[1-3]	Nashville, Tenn.	J. C. Overall	991	.....	9	4	1	3	1	200
Vanderbilt University Hospital[1-3-267-268]	Nashville, Tenn.	A. Christie	936	12,554	52	23	4	5	2	50
Children's Medical Center[1-3]	Dallas, Texas	G. Forbes	3,505	51,011	90	60	6	14	2	50
St. Paul's Hospital[1-3]	Dallas, Texas	A. L. Alfieri	2,052	5,147	23	11	2	2	1	125
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	A. E. Hansen	1,017	13,322	86	55	5	12	2	...
Hermann Hospital[1-3-275]	Houston, Texas	R. J. Blattner	1,247	8,490	47	36	4	9	2	100
Jefferson Davis Hospital[1-3]	Houston, Texas	R. J. Blattner	1,546	40,856	185	66	3	7	2	50
Santa Rosa Hospital[3]	San Antonio, Texas	S. R. Kaliski	1,817	4,879	51	27	1	2	1	150
Salt Lake County General Hospital[1-3]	Salt Lake City	J. F. Bosma	1,391	3,717	52	38	..	10	2	...
Mary Fletcher Hospital[1-3]	Burlington, Vt.	R. J. McKay, Jr.	993	737	13	12	1	2	1	75
University of Virgi	Va.	W. W. Waddell, Jr.	1,156	7,019	82	42	3	5	2	50
Medical College of	Va.	L. E. Sutton, Jr.	1,892	17,611	105	48	6	12	2	...
Children's Orthopedic Hospital[1-3]	Seattle, Wash.	J. I. Durand	1,201	9,963	56	45	2	3	2	...
King County Hospital, Unit No. 1 (Harborview)[1-293]	Seattle, Wash.	W. B. Seelye	1,721	1,987	49	16	..	2	2	130
Memorial Hospital	Charleston, W. Va.	....	.....	.....	..	..	..	..	1	...
University Hospitals[1-3]	Madison, Wis.	J. E. Gonce	744	2,751	57	45	1	2	2	50
Milwaukee Children's Hospital[1]	Milwaukee, Wis.	G. H. Wegmann	2,723	24,432	71	56	4	9	2	125
Milwaukee County Hospital[1-3]	Milwaukee, Wis.	M. G. Peterman	4,063	5,372	79	25	2	4	2	208.92
Kauikeolani Children's Hospital[1-3-301]	Honolulu, T. H.	C. K. Kobayashi	3,324	4,586	39	30	3	4	2	250
Bayamon District Hospital[1-3]	Bayamon, P. R.	I. O. Freedman	1,801	1,440	160	64	1	2	1	250
San Juan City Hospital[1-3]	San Juan, P. R.	A. Ortiz	1,610	75,049	211	78	2	5	2	150

Numerical and other references will be found on pages 373 and 374.

19. PHYSICAL MEDICINE AND REHABILITATION

The following services have been approved by the Council and the American Board of Physical Medicine and Rehabilitation. Residencies in this specialty have been approved without specifying the number of years for which they are accredited. The Board will give appropriate credit for training in these hospitals on an individual basis.

Hospitals, 48; Assistant Residencies and Residencies, 122

Name of Hospital	Location	Chief of Service	Inpatients Treated	Number of Treatments	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL							
UNITED STATES ARMY							
Letterman Army Hospital[66]	San Francisco	R. C. Psaki	5,561	124,303	2	6	...
Fitzsimons Army Hospital[66]	Denver, Colo.	H. B. Luscombe	7,219	242,048	1	3	...
Army Medical Center[1-66-67]	Washington, D. C.	J. H. Kuitert	4,091	339,276	2	6	...
Brooke Army Medical Center[66-280]	San Antonio, Texas	C. D. Shields	22,774	253,917	..	..	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital[1-3]	Long Beach, Calif.		3,494	212,781	..	..	...
Veterans Admin. Hospital[1-3]	Denver		2,439	42,283	1	1	...
Veterans Admin. Hospital[1]	Hines, Ill.		5,084	475,254	..	4	...
Veterans Admin. Hospital[1-3]	Wadsworth, Kans.		2,069	146,889	1	2	...
Veterans Admin. Hospital[1-3-132]	Boston (West Roxbury), Mass.		.....	......	..	..	...
Veterans Admin. Hospital[1-3]	New York City (Bronx)		4,129	313,798	1	3	...
Veterans Admin. Hospital[1-3]	Cleveland	[illegible]	4,554	37,000	2	2	...
Veterans Admin. Hospital[1-3]	Portland, Ore.	E. W. Fowlks	4,307	108,964	1	2	...
Veterans Admin. Hospital[1]	Aspinwall, Pa.	S. Machover	1,661	98,519	1	3	...
Veterans Admin. Hospital[1-3]	Memphis, Tenn.	F. I. Mahoney	9,021	152,753	2	4	...
Veterans Admin. Hospital[1-3]	Houston, Texas	B. L. Boynton	1,779	73,036	1	1	...
Veterans Admin. Hospital[1]	Milwaukee	R. Piaskoski	18,844	244,972	2	2	...
NONFEDERAL							
Los Angeles County Hospital[1]	Los Angeles	E. Austin	.....	39,468	..	1	190
White Memorial Hospital[1-3]	Los Angeles	F. B. Moor	.....	32,071	1	3	146.25
University of Colorado Medical Center		....	.....	.....	1	3	150
Colorado General Hospital[1-3-22]	Denver	H. L. Dinken	2,020	30,246	..	..	...
Denver General Hospital[1-3-22]	Denver	H. L. Dinken	2,259	18,353	..	..	...
Connecticut State Veterans Home and Hospital for Chronic Illness[1-54]	Rocky Hill, Conn.	N. K. Covalt	681	61,233	3	3	335
George Washington University Hospital[1-3]	Washington, D. C.	C. Wise	2,466	22,372	1	1	150
Emory University Hospital[1-3]	Emory University, Ga.	R. L. Bennett	3,371	15,812	1	2	...
Georgia Warm Springs Foundation[1-3-76]	Warm Springs, Ga.	R. L. Bennett	645	93 664	2	6	400
Michael Reese Hospital[1-3]	Chicago	C. Molander	4,261	43,650	1	1	50
Northwestern University Medical Center[1-3-90]	Chicago	....	.....	.....	..	..	...
University of Illinois Research and Educational Hospitals[1-3]	Chicago	F. A. Hellebrandt	761	14,580	1	2	60
University of Kansas Medical Center[1-3]	Kansas City, Kan.	D. Rose	3,536	67,086	1	2	125
Massachusetts General Hospital[1-3]	Boston	A. L. Watkins	1,505	19,057	2	2	100
University Hospital[1-5]	Ann Arbor, Mich.	J. W. Rae, Jr	.....	22,813	2	6	131.16
University of Minnesota Hospitals[1-3]	Minneapolis	F. Kottke	12,367	23,825	2	7	150
Mayo Foundation[1-3]	Rochester, Minn.	F. H. Krusen	17,083	93,580	3	7	150
Barnes Hospital[1-3]	St. Louis	S. Mead	1,520	8,189	..	1	50
Bellevue Hospital Center, Division III—New York University College of Medicine[1-3-208-209-222]	New York City	H. A. Rusk	1,144	101,074	3	9	98
Goldwater Memorial Hospital[1-3]	New York City	M. Dacso	686	63,892	..	..	...
Hospital for Joint Diseases[1-3]	New York City	J. Weiss	23,697	81,519	1	2	70
Hospital for Special Surgery[1-3]	New York City	K. G. Hansson	2,801	35,068	2	2	...
Metropolitan Hospital[1-3]	New York City	J. Tobis	420	30,882	2	2	...
Mount Sinai Hospital[1-3]	New York City	W Bierman	9,910	36,694	1	1	...
New York City Hospital[1-3]	New York City	L. Wisham F. K. Safford	1,004	22,261	1	1	150
Presbyterian Hospital[1-3]	New York City	R. C. Darling	6,371	184,423	1	1	208.33
St. Luke's Hospital[1-3]	New York City	R. Muller	871	126,308	1	1	100
Rehabilitation Hospital[1-3]	West Haverstraw, N. Y.	M. Hoberman	572	308,491	..	..	225
Cleveland Clinic Hospital[1-3]	Cleveland	W. J. Zeiter	3,470	16,102	1	3	175
University Hospitals							
University Hospital[1-3]	Columbus, Ohio	R. E. Worden	1,601	20,866	1	2	150
Hospital of the University of Pennsylvania[1-3]	Philadelphia	G. Piersol	3,532	55,473	1	3	...
Philadelphia General Hospital[1-3]	Philadelphia	A. A. Martucci	7,076	99,605	2	2	112.34
Medical College of Virginia—Hospital Division[1-3]	Richmond, Va.	H. W. Park	4,385	41,445	2	6	50

20. PLASTIC SURGERY

The following services have been approved by the Council and the American Board of Plastic Surgery.

Hospitals, 29; Assistant Residencies and Residencies, 67

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL										
VETERANS ADMINISTRATION										
Veterans Admin. Hospital[1-3]	Los Angeles	G. Webster	302	350	2	2	1	1	1	...
Veterans Admin. Hospital[1]	Hines, Ill.	P. W. Greeley	235	194	3	1	..	1	2	...
Veterans Admin. Hospital[1-3]	New York City	H. Conway	242	618	2	1	2	4	2	...
Veterans Admin. Hospital[1-171]	White River Jct., Vt.	R. C. Tanzer	352	1,875	..	..	1	2	2	...
NONFEDERAL										
Franklin Hospital[1-3]	San Francisco	H. M. Blackfield	266	500	..	..	1	2	2	125
St. Francis Memorial Hospital[1-3]	San Francisco	G. W. Pierce	756	242	..	..	1	2	2	300
Indiana University Medical Center[1]	Indianapolis	H. M. Trusler	370	1,475	6	5	..	1	2	200
University of Kansas Medical Center[1-3]	Kansas City, Kan.	D. Robinson	501	2,197	6	5	..	1	2	125
Johns Hopkins Hospital[1-3]	Baltimore	M. Edgerton	...	2,532	..	..	..	2	2	...
Mayo Foundation[1-3]	Rochester, Minn.	F. A. Figi	3,981	11,476	12	10	5	14	2	150
Barnes Hospital[1-3]	St. Louis	J. B. Brown	825	.....	8	7	..	4	2	50
Mary Hitchcock Memorial Hospital[1-3]	Hanover, N. H.	R. C. Tanzer	352	1,875	..	..	1	2	2	220

Numerical and other references will be found on pages 373 and 374.

20. PLASTIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Hospital of St. Barnabas and for Women and Children [1-3]	Newark, N. J.	L. A. Peer	744	790	2	2	1	2	2	100
Albany Hospital [1-3]	Albany, N. Y.	W. B. Macomber	353	260	..	..	2	2	2	135
Kings County Hospital [1-2]	Brooklyn	D. Teplitsky	1,015	3,047	29	2	2	4	2	93
Beth Israel Hospital [1-3]	New York City	A. J. Barsky	227	188	..	..	1	1	2	75
New York Hospital [1-3]	New York City	H. Conway	508	.....	..	..	..	1	1	25
Presbyterian Hospital [1-3]	New York City	J. P. Webster	637	3,764	..	..	2	4	2	208.33
Strong Memorial-Rochester Municipal Hospitals [1-3]	Rochester, N. Y.	R. M. McCormack	303	410	..	..	..	1	1	41.66
Duke Hospital [1-3]	Durham, N. C.	K. L. Pickrell	886	2,035	4	2	..	3	2	25
University Hospitals [1-3]	Oklahoma City	J. F. Burton	233	777	2	..	1	1	1	50
Allentown Hospital [1-3]	Allentown, Pa.	K. M. Marcks	566	1,465	..	..	1	1	2	225
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	L. C. Curtis	267	149	2	1	1	2	2	...
Pittsburgh Medical Center [1-231]	Pittsburgh	S. M. Dupertuis	247	.....	..	..	..	1	2	50
Baylor University Hospital [1-3]	Dallas, Texas	J. T. Mills	837	.....	1	..	1	1	2	75
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	T. G. Blocker, Jr.	943	4,077	18	10	1	3	2	...
Jefferson Davis Hospital [1]	Houston, Texas	S. B. Hardy T. D. Cronin	185	1,135	6	3	1	2	2	50
University Hospitals [1-3]	Madison, Wis.	W. B. Slaughter	394	1,978	3	2	1	2	2	50

21. PREVENTIVE MEDICINE AND PUBLIC HEALTH

The following programs have been approved for two years of training by the Council and the American Board of Preventive Medicine.

Department of Health	Location	Director	Local Areas	Population	Stipend (Month)
State of California	San Francisco	W. L. Halverson	Alameda County (a)	214,600*	$400 max.
			San Joaquin Local Health Dist.	224,500*	....
State of Delaware	Dover	F. I. Hudson, Ex. Sec.	Kent and Newcastle Counties (b)	153,009*	$100-500 (c)
State of Florida	Jacksonville	W. T. Sowder	Alachua County	61,950*	$475-500
			Dade-Miami	612,900*	....
			Hillsborough-Tampa	277,730*	....
			Pinellas-St. Petersburg	178,070*	....
State of Illinois	Springfield	R. R. Cross	Cook County (d),(e)	743,938	$416-500
			Will County (e)	134,336	....
State of Kansas	Wichita	T. B. Hood	Kansas City-Wyandotte	172,762	(f)
			Topeka-Shawnee	116,774	....
			Wichita-Sedgwick	272,000	....
State of Maryland	Baltimore	R. H. Riley	Anne Arundel County	128,401*	(g)
			Baltimore County	290,024*	
			Eastern Health District of Baltimore City	108,299*	
			Montgomery County	182,511*	
			Washington County	81,147*	
State of Massachusetts	Boston	V. A. Getting	(h)	(h)	$450 (i)
State of Michigan	Lansing	A. E. Heustis	Barry County	27,000*	$400
			Calhoun County	120,813	....
			Detroit	1,849,568	....
			Wayne County (j)	490,673	....
State of Minnesota	Minneapolis	A. J. Chesley, Secy. and Ex. Off.	Olmstead-Rochester	49,914*	75% of What job will pay (k)
New York City	New York City	J. F. Mahoney	Fort Greene	221,918	$390
			Jamaica West	274,169	....
			Red Hook	172,391	....
			Tremont	304,601	....
State of New York	Albany	H. E. Hilleboe	(l)	(l)	$425
State of North Carolina	Raleigh	J. W. R. Norton	Charlotte-Mecklenburg County	211,754*	$500
			Forsyth-Winston-Salem	152,524*	....
			Halifax	58,981*	....
			Orange-Person-Chatham-Lee	112,955*	....
State of Virginia	Richmond	M. I. Shanholtz	Arlington County	150,000*	$687.50
State of Washington	Seattle	J. A. Kahl	Kitsap-Bremerton	75,724	....
			King-Seattle	732,992	$500
			Clark-Skamania	90,095	$580

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* Estimated.

(a) Excludes Alameda, Berkeley and Oakland cities with full time health officers, and Albany and Livermore with part-time officers.

(b) Excludes the city of Wilmington.

(c) To those planning to work in state; transportation costs only to others.

(d) Excludes Berwyn, Chicago, Evanston, Oak Park, Stickney Township, and Winnetka (including Glencoe, Kenilworth, Northbrook, and remainder of New Trier Township), all with full time health officers.

(e) Opportunity available to secure master's degree in public health.

(f) Arrangements for remuneration made on an individual basis.

(g) Arrangements for remuneration made upon determination of field of interest and location desired.

(h) Training is given in a combination of one county, one union health and seven municipal health departments, and in the divisions of the State Department of Health.

(i) To those training for service in Massachusetts only.

(j) Excludes Detroit and Dearborn, each with full time health officers.

(k) To those training for service in Minnesota only.

(l) Training is given in any one of ten City Health Departments, 14 County Health Departments, or 15 District Offices within the State.

Numerical and other references will be found on pages 373 and 374.

22. PROCTOLOGY

The following services have been approved by the Council and the American Board of Proctology. Residencies in this specialty have been approved without specifying the number of years for which they are accredited. The Board will give appropriate credit for training in these hospitals on an individual basis.

Hospitals, 12; Assistant Residencies and Residencies, 49

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
VETERANS ADMINISTRATION									
Veterans Admin. Hospital[1-3]	Los Angeles	O. Taylor	351	2,887	3	2	1	1	...
NONFEDERAL									
Ferguson-Droste-Ferguson Rectal Clinic and Hospital[1-3]	Grand Rapids, Mich.	J. A. Ferguson	1,638	8,321	19	9	2	3	275
University of Minnesota Hospitals[1-3]	Minneapolis, Minn.	O. H. Wangensteen	1,908	6,234	117	88	9	27	...
Mayo Foundation[1-3]	Rochester, Minn.	R. J. Jackman	824	18,527	..	..	1	5	150
Millard Fillmore Hospital[1-3]	Buffalo, N. Y.	H. C. Guess	460	5	5	2	1	1	255
Youngstown Hospital	Youngstown, Ohio	P. J. Fuzy	652	76	7	6	1	1	125
Allentown Hospital[1-3]	Allentown, Pa.	M. S. Kleckner	707	49	9	4	1	1	225
Jefferson Medical College Hospital[1-3]	Philadelphia	T. A. Shallow	507	1,245	..	..	1	1	50
Temple University Hospital[1-3]	Philadelphia	H. E. Bacon	919	1,402	20	10	1	3	50
Pittsburgh Medical Center[1-261]	Pittsburgh	K. Zimmerman	534	.....	..	..	..	1	50
Baylor University Hospital[1-3]	Dallas, Texas	C. Rossea	989	119	4	..	1	2	75
Milwaukee County Hospital[1-3]	Milwaukee	A. G. Schutte	238	1,266	26	6	1	3	208.92

23. PSYCHIATRY

The following services have been approved by the Council and the American Board of Psychiatry and Neurology

Hospitals, 263; Assistant Residencies and Residencies, 2,215

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Program Identification	Beginning Stipend (Month)
UNITED STATES ARMY											
Letterman Army Hospital[66]	San Francisco	E. B. Litteral	1,591	2,296	5	1	5	15	3	12	...
Army Medical Center[1-66-67]	Washington, D. C.	J. M. Caldwell	1,324	3,108	1	1	7	20	3	..	...
Fitzsimons Army Hospital[66]	Denver, Colo.	O. M. Weaver	847	4,268	2	2	5	15	3	..	...
UNITED STATES NAVY											
U. S. Naval Hospital[1]	Oakland, Calif.	D. O. Gaede	1,704	2,047	..	..	..	2	2	..	...
U. S. Naval Hospital	San Diego, Calif.	....	1,531	3,460	1	1	..	..	1	..	...
U. S. Naval Hospital[1]	Great Lakes, Ill.	F. H. Ocko	1,127	1,129	1	1	..	..	1	..	...
U. S. Naval Hospital[1]	Bethesda, Md.	T. W. McDaniel, Jr.	813	4,303	..	..	..	7	3	..	...
U. S. Naval Hospital[1]	Chelsea, Mass.	J. E. Nardini	463	2,284	..	..	2	2	1	..	...
U. S. Naval Hospital[1]	St. Albans, N. Y.	S. M. Smith	865	1,000	..	..	..	..	1	..	...
U. S. Naval Hospital[1]	Philadelphia	J. F. McMullin	1,818	7,760	7	1	..	5	2	..	...
U. S. Naval Hospital[1]	Portsmouth, Va.	J. N. Williams	2,079	1,421	..	..	4	4	1	..	...
UNITED STATES PUBLIC HEALTH SERVICE											
U. S. Public Health Service Hospital[1]	Lexington, Ky.	J. A. Grider	.....	.....	..	..	..	..	..	..	...
		R. W. Rasor	5,299	.....	21	10	6	18	3	30	...
National Institute of Health—Clinical Center	Bethesda, Md.	....	.....	.....	..	..	..	..	1	..	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE											
St. Elizabeth's Hospital[1-3]	Washington, D. C.	W. Overholser	8,516	.....	431	258	10	26	3	20	...
VETERANS ADMINISTRATION											
Veterans Admin. Hospital[1-3]	Tuskegee, Ala.	P. P. Barker	2,242	15	39	20	4	4	2	..	...
Veterans Admin. Hospital[1-3]	North Little Rock, Ark.	E. S. Chappell	2,617	.....	51	37	4	8	3	49	...
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	J. S. I. Jacobs	444	750	2	1	3	3	3	..	...
Veterans Admin. Hospital[1-3]	Los Angeles, Calif.	J. Pessin	1,950	.....	167	132	15	40	3	11	...
Veterans Admin. Hospital[1-3]	Palo Alto, Calif.	M. W. MacDonald	2,102	1,478	41	29	10	30	3	14	...
Veterans Admin. Hospital[1-3-218]	Newington, Conn.	T. P. Sohler	262	800	1	1	4	8	2	18	...
Veterans Admin. Hospital[1-3-71]	Augusta, Ga.	W. V. Walsh	1,391	722	8	3	3	6	2	21	...
Veterans Admin. Hospital	Downey, Ill.	A. Paunez	2,243	.....	47	40	2	6	3	26	...
Veterans Admin. Hospital[1]	Hines, Ill.	F. G. Gerty	847	2	16	4	4	13	3	25	...
Veterans Admin. Hospital	Indianapolis	P. O. Seitz	710	326	8	7	..	..	1	..	...
	Topeka, Kan.	N. V. Bolin	1,336	.....	13	12	25	75	3	29	...
	exington, Ky.	E. W. Straus	1,612	.....	42	26	..	4	3	31	...
	... Louisville	D. F. Moore	250	114	7	4	2	6	3	32	...
Veterans Admin. Hospital[1]	New Orleans	R. W. Buddington	367	840	3	2	1	3	2	34	...
Veterans Admin. Hospital[1-3]	Perry Point, Md.	W. M. Harris	620	.....	60	35	4	12	3	37	...
Veterans Admin. Hospital[1-3]	Bedford, Mass.	J. L. Hoffman	1,938	20,661	41	29	6	18	3	39	...
Veterans Admin. Hospital[1-3]	Boston (Jamaica Plain), Mass.	W. Bloomberg	613	...	8	1	20	40	3	..	...
Veterans Admin. Hospital[1-3]	Dearborn, Mich.	J. L. Kubanek	776	590	29	26	2	6	3	45	...
Veterans Admin. Hospital[1-3]	Fort Custer, Mich.	A. L. Olsen	2,484	.....	48	31	7	7	3	42	...
Veterans Admin. Hospital[1-3]	*Minneapolis*	W. *Simon*	658	3	1	1	..	7	3	46	...
Veterans Admin. Hospital[1]	Gulfport, Miss.	E. R. Bennett	1,602	.....	36	30	5	13	3	34	...
Veterans Admin. Hospital[1-3]	Jefferson Barracks, Mo.	A. K. Baur	634	.....	19	15	2	6	3	48	...
Veterans Admin. Hospital[3]	Omaha, Neb.	....	214	.....	7	4	2	6	3	53	...
Veterans Admin. Hospital[1-3]	Lyons, N. J.	M. P. Rosenblum	2,289	.....	56	36	2	5	3	54	...
Veterans Admin. Hospital[1-3]	Brooklyn, N. Y.	J. Barasch	326	.....	6	4	4	9	3	57	...
Veterans Admin. Hospital[1-3]	Buffalo, N. Y.	B. G. Schutkeker	417	.....	9	7	..	2	2	56	...
Veterans Admin. Hospital[1-3]	Canandaigua, N. Y.	E. M. Levy	1,820	.....	38	33	3	6	2	65	...
Veterans Admin. Hospital[1-3]	Montrose, N. Y.	A. A. Schillinger	2,235	.....	38	27	3	10	3	60	...
Veterans Admin. Hospital[1-3]	New York City	H. Flowers	863	10,483	8	4	10	26	3	61	...
Veterans Admin. Hospital[1-3]	Cleveland, Ohio	L. Halle	343	1,150	..	..	3	7	3	70	...
Veterans Admin. Hospital[1-3]	Coatsville, Pa.	A. O. Hecker	2,054	.....	40	35	10	40	3	73	...
Veterans Admin. Hospital[1]	Nashville, Tenn.	B. T. Bennett	.....	.....	..	..	4	7	3	76	...
Veterans Admin. Hosptial[1-3]	Houston, Texas	A. D. Pokorny	786	914	..	..	1	3	3	78	...
Veterans Admin. Hospital[1]	Waco, Texas	G. T. McMahan	3,009	.....	57	36	3	3	1	..	...
Veterans Admin. Hospital[1]	Richmond, Va.	B. Nagler	684	143	5	1	1	3	3	82	...
Veterans Admin. Hospital[1-3]	Roanoke, Va.	H. P. Morgan	2,707	290	49	42	5	13	3	68,80	...
Veterans Admin. Hospital[1-3]	Seattle, Wash.	N. C. Chivers	454	16	..	..	4	10	3	83	...

Numerical and other references will be found on pages 373 and 374.

23. PSYCHIATRY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Program Identification	Beginning Stipend (Month)
Jefferson-Hillman Hospital [1-3]	Birmingham, Ala.	F. A. Kay	.....	22	..	..	1	3	1	..	...
Arkansas State Hospital [1]	Little Rock, Ark.	W. Reese	6,854	.....	394	80	6	12	2	..	350
Agnews State Hospital [1-3]	Agnew, Calif.	R. P. Quirmbach	7,591	200	534	110	6	6	1	..	613
Herrick Memorial Hospital [1-3]	Berkeley, Calif.	A. E. Bennett	507	393	1	1	1	3	2	..	100
[3]	Compton, Calif.	G. C. Burns	518	2,000	4	1	4	4	1	..	250
[3]	Imola, Calif.	W. A. Oliver	6,551	316	461	132	2	2	1	..	281
spital [1]	Los Angeles, Calif.	M. G. Carter	9,284	.....	533	92	..	10	3	..	190
[1]	Norwalk, Calif.	R. E. Wyers	4,175	.....	196	53	3	5	3	15	295
	Patton, Calif.	O. L. Gericke	.....	.....	..	..	1	1	1	..	295
[3]	*San Francisco*	K. M. *Bowman*	270	*16,586*	*6*	*5*	11	39	3	13	295
Mount Zion Hospital [1-3]	San Francisco	N. Reider	.....	7,398	..	..	..	4	2	..	100
Pacific Colony [1-3]	Spadra, Calif.	G. Tarjan	2,030	1,913	43	30	..	3	1	..	295
Stanford University Hospitals [1-3]	San Francisco	G. S. Johnson	322	4,961	3	2	1	3	3	..	...
University of Colorado Medical Center											
Colorado Psychopathic Hospital [1-3-22]	Denver, Colo.	E. W. Busse	989	5,699	20	7	12	36	3	16	100
Colorado State Hospital [1-3]	Pueblo, Colo.	J. L. Rosenbloom	6,280	.....	438	181	6	12	2	..	275
Institute of Living [1-3]	Hartford, Conn.	F. J. Braceland	990	.....	10	..	8	16	3	..	275
Connecticut State Hospital [1-3]	Middletown, Conn.	H. S. Whiting	3,067	485	374	88	6	12	2	..	350
Silver Hill Foundation	New Canaan, Conn.	W. B. Terhune	290	400	..	..	..	1	1	..	600
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	T. Lidz	150	3,236	..	..	6	13	3	17	50
Fairfield State Hospital [1-3]	Newtown, Conn.	J. E. Oltman	3,733	5	295	157	5	10	2	..	430
State Hospital [1-3]	Norwich, Conn.	C. O. Ranger	3,914	507	259	74	6	12	2	..	370
Delaware State Hospital [1-3-61]	Farnhurst, Del.	M. A. Tarumianz	1,871	4,950	113	41	3	9	2	19	200
Gallinger Municipal Hospital [1-3]	Washington, D. C.	G. Gordon	3,572	348	33	12	3	3	1	..	...
Georgetown University Hospital [1-3]	Washington, D. C.	G. Raines	.....	1,690	..	..	4	8	2	..	...
George Washington University Hospital [1-3]	Washington, D. C.	W. Overholser	745	497	2	1	..	1	2	..	150
Tampa Municipal Hospital [1-3]	Tampa, Fla.	S. G. Hibbs	1,322	813	18	6	1	1	1	..	125
University Hospital	Augusta, Ga.	H. M. Cleckley	901	.....	7	..	3	9	2	..	160
Chicago State Hospital [1-3]	Chicago	I. Spinka	6,775	1,576	820	132	4	10	3	23	250
Cook County Hospital [1-3]	Chicago	V. G. Urse	8,446	.....	133	14	5	5	3	..	250
Loretto Hospital [1-3]	Chicago	J. J. Madden	538	1,119	1	1	2	2	1	..	200
Mercy Hospital [1-3]	Chicago	J. J. Madden	375	2,798	..	..	1	2	1	..	100
Michael Reese Hospital [1-3]	Chicago	R. R. Grinker	701	9,781	3	1	4	12	3	..	50
Neuropsychiatric Institute of the University of Illinois	Chicago	F. J. Gerty	170	3,725	2	..	3	9	3	27	60
St. Luke's Hospital [1-3]	Chicago	F. J. Gerty	674	492	5	3	1	1	3	22	50
University of Chicago Clinics [1-3]	Chicago	N. B. Apter	139	4,909	2	1	3	9	3	..	175
Wesley Memorial Hospital [1-3]	Chicago	P. S. Rhoads	769	3,413	7	3	1	1	1	..	50
Dixon State Hospital [1-3]	Dixon, Ill.	C. K. Bush	5,066	394	163	90	3	3	1	..	231
Elgin State Hospital [1-3]	Elgin, Ill.	A. A. Lieberman	8,579	169	550	175	12	18	3	23	230
Jacksonville State Hospital	Jacksonville, Ill.	S. Leschin	5,260	1,045	344	122	4	4	1	..	230
Kankakee State Hospital [1-3]	Kankakee, Ill.	A. Aronson	6,065	1,181	334	91	1	1	1	..	280
Manteno State Hospital [1-3]	Manteno, Ill.	M. W. Chermak	10,232	.....	598	164	..	..	2	24	280
North Shore Health Resort [1-3]	Winnetka, Ill.	S. Liebman	368	481	7	..	..	2	1	..	...
Central State Hospital [1]	Indianapolis	C. L. Williams	2,440	.....	144	2	4	4	2	..	375
Indianapolis General Hospital [1-102-103]	Indianapolis	E. Mericle	405	1,031	11	5	1	3	3	28	150
Indiana University Medical Center [1]	Indianapolis	H. Gaskill	405	3,837	11	5	12	39	3	28	355
Norways Foundation Hospital [1-3]	Indianapolis	C. K. Hepburn	775	1,528	11	2	2	6	2	..	300
Logansport State Hospital [1]	Logansport, Ind.	G. W. Morrow	2,370	591	195	42	6	6	1	..	545
Mental Health Institute [1-3]	Cherokee, Iowa	W. C. Brinegar	2,043	362	111	60	2	4	1	..	300
Mental Health Institute	Independence, Iowa	....	.....	.....	..	..	..	..	1	..	...
State Psychopathic Hospital [1]	Iowa City, Iowa	W. R. Miller	352	4,818	..	..	4	12	3	..	200
Halstead Hospital [1]	Halstead, Kans.	T. L. Foster	347	.....	1	..	1	2	2	..	250
University of Kansas Medical Center [1-3]	Kansas City, Kans.	Wm. Roth, Jr.	141	686	..	..	3	9	3	..	125
Menninger Psychiatric Hospital [1-3]	Topeka, Kans.	K. A. Menninger	262	22,146	..	..	15	39	3	29	300
Topeka State Hospital	Topeka, Kans.	....	.....	.....	..	..	..	..	3	29	...
Central State Hospital	Lakeland, Ky.	....	2,726	750	186	6	1	1	1	..	...
University of Louisville Hospitals											
Louisville General Hospital [1-3]	Louisville, Ky.	S. S. Ackerly	732	2,017	3	3	1	1	3	33	200
Norton Memorial Infirmary [1-3]	Louisville, Ky.	S. S. Ackerly	270	595	2	..	1	3	3	33	200
Charity Hospital of Louisiana											
Louisiana State University Unit [1-3]	New Orleans, La.	R. A. Matthews	280	5,896	9	4	2	6	3	35	40
Tulane Unit [1-3]	New Orleans, La.	R. G. Heath	204	5,075	7	4	2	6	3	34	40
De Paul Sanitarium [1-3]	New Orleans, La.	W. J. Otis	1,280	748	21	7	2	6	1	..	200
Johns Hopkins Hospital [1-3]	Baltimore	J. C. Whitehorn	342	5,446	1	1	..	18	3	36	...
Seton Institute [1-3]	Baltimore	W. O. Jahrreiss	633	100	13	..	3	10	2	..	125
Spring Grove Stat		I. Tuerk	3,640	551	154	41	3	9	2	..	300
Chestnut Lodge [1-]		D. M. Bullard	116	3,855	1	..	..	6	1	..	250
Springfield State		M. V. Beyer	3,894	.....	190	57	2	4	2	..	400
Sheppard & Enoch Pratt Hospital [1]	Towson, Md.	H. M. Murdock	503	.....	11	6	5	12	3	..	166
Beth Israel Hospital [1-3]	Boston	G. L. Bibring	.....	1,657	..	..	..	6	1	..	200
Boston Psychopathic Hospital [1-3]	Boston	H. C. Solomon	900	10,776	2	..	..	25	3	..	167
Boston State Hospital [1-3]	Boston	J. Mann	4,456	4,048	323	75	12	26	2	..	250
Massachusetts General Hospital [1-3]	Boston	S. Cobb	197	4,882	..	..	2	3	2	40	100
Massachusetts Memorial Hospitals [1-3]	Boston	W. Malamud	...	3,735	..	..	..	8	3	38	250
New England Center Hospital [1-3]	Boston	J. M. Hope	...	...	..	..	1	3	1	..	83.33
St. Elizabeth's Hospital [1-3]	Boston, Mass.	N. Flanagan	556	367	1	..	1	1	1	..	125
Foxborough State Hospital [1-3]	Foxborough, Mass.	J. T. Shea	1,658	616	129	38	3	2	2	..	255
Danvers State Hospital [1-3]	Hathorne, Mass.	C. A. Bonner	3,274	316	287	54	2	2	1	..	255
Medfield State Hospital [1-3]	Mass.	T. F. Lindberg	1,960	198	149	32	2	2	1	..	255
Northampton State Hospit	Mass.	J. H. Longpré	3,192	320	250	..	1	1	1	..	235
Austen Riggs Center [1-3]	Mass.	R. P. Knight	143	3,469	..	..	..	5	2	..	500
Taunton State Hospital [1-]	Mass.	B. E. Zawacki	2,723	...	272	37	3	3	2	..	255
Metropolitan State Hospital [1-3]	Waltham, Mass.	M. Asekoff	2,802	382	171	47	..	3	2	..	255
McLean Hospital [1-3]	Waverley, Mass.	P. M. Howard	472	...	24	8	1	5	2	40	...
Worcester City Hospital [1-3]	Worcester, Mass.	F. L. Vibber	646	1,192	109	51	1	1	1	..	200
Worcester State Hospital [1-3]	Worcester, Mass.	D. Rothschild	3,635	1,346	279	18	6	14	3	..	...
University Hospital [1-3]	Ann Arbor, Mich.	R. W. Waggoner	538	8,085	...	..	6	24	3	..	291.66
St. Joseph's Retreat [1-3]	Dearborn, Mich.	M. H. Hoffmann	1,488	293	13	3	2	2	1	..	350
City of Detroit Receiving Hospital [1-3]	Detroit	J. Dorsey	6,393	568	57	43	1	2	3	44	254
Henry Ford Hospital [1-3]	*Detroit*	L. D. Proctor	519	8,144	23	17	1	4	3	41	225
Wayne County General Hospital [1-3]	Eloise, Mich.	R. Leiser	5,052	7,833	274	78	5	15	3	10	483.33
Kalamazoo State Hospital [1]		C. M. Schrier	4,019	...	231	8	..	1	2	43	583
Pontiac State Hospital [1-3]		P. V. Wagley	4,699	3,087	194	69	5	10	3	10	481
Traverse City State Hospital [1-3]	Traverse City, Mich.	R. P. Sheets	4,448	1,269	...	..	4	7	2	..	481
Ypsilanti State Hospital [1-3]	Ypsilanti, Mich.	O. R. Yoder	5,005	1,652	309	96	9	17	3	..	481
Hastings State Hospital	Hastings, Minn.	R. Rossen	1,000	300	..	..	6	24	1	..	170
Minneapolis General Hospital [1-3]	Minneapolis	J. C. Michael	718	...	14	11	..	1	1	..	169
University of Minnesota Hospitals [1-3]	Minneapolis	D. W. Hastings	290	2,377	1	1	2	..	4	..	150
Mayo Foundation [1-3]	Rochester, Minn.	H. P. Rome	1,809	2,688	80	80	5	13	3	47	150
Rochester State Hospital [1-3]	Rochester, Minn.	M. C. Petersen	2,427	...	150	74	..	3	1	..	250

Numerical and other references will be found on pages 373 and 374.

23. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Program Identification	Beginning Stipend (Month)
Kansas City General Hospital No. 1	Kansas City	M. L. Bills	408	1,520	2	1	2	6	1	..	166.66
State Hospital No. 2[1]	St. Joseph, Mo.	O. Mullinax	2,300	92	138	14	2	2	1	..	200
Barnes Hospital[1-3]	St. Louis, Mo.	E. F. Gildea	584	2,519	5	2	6	13	3	11	50
Homer G. Phillips Hospital[1-3]	St. Louis, Mo.	E. F. Gildea	837	2,105	85	11	3	7	2	..	190
St. Louis City Hospital[1-3]	St. Louis, Mo.	E. Gildea R. Britt	1,541	1,790	..	21	4	10	3	..	137.75
St. Louis State Hospital[1-3]	St. Louis, Mo.	L. H. Kohler	3,766	1,102	190	71	7	19	3	..	250
St. Mary's Group of Hospitals[1-3]	St. Louis, Mo.	F. M. Grogan	403	1,336	5	3	1	3	3	50	65
Hastings State Hospital[1-3]	Ingleside, Neb.	G. L. Sandritter	3,712	465	173	35	2	8	2	52	400
Norfolk State Hospital[1]	Norfolk, Neb.	C. G. Ingham	1,482	377	86	6	3	3	1	52	400
Creighton Memorial St. Joseph's Hospital[1]	Omaha	F. Barta	998	2,252	8	2	2	6	2	..	150
Lutheran Hospital[1]	Omaha	R. S. Wigton	1,047	736	4	..	1	2	2	..	200
University of Nebraska Hospital[1-3]	Omaha	R. H. Young	...	460	..	..	6	18	3	51	175
New Hampshire State Hospital[1-3]	Concord, N. H.	J. L. Smalldon	3,600	125	262	61	2	2	1	..	255
Essex County Overbrook Hospital[1-3]	Cedar Grove, N. J.	E. N. Plesants	4,201	540	345	70	5	9	2	..	308.33
New Jersey State Hospital	Greystone Park, N. J.	....	.....	.....	...	..	..	..	2	..	...
New Jersey State Hospital	Marlboro, N. J.	J. B. Gordon	4,800	1,292	356	127	..	2	2	11	300
New Jersey State Hospital[1]	Trenton, N. J.	H. S. Magee	6,069	...	368	67	6	10	2	..	455
Albany Hospital[1-3]	Albany, N. Y.	W. L. Holt, Jr.	1,424	913	12	5	2	3	2	..	135
Binghamton State Hospital[1-3]	Binghamton, N. Y.	O. H. Boltz	3,435	900	285	64	..	4	2	..	395.58
Brooklyn State Hospital[1-3]	Brooklyn, N. Y.	N. Beckenstein	...	...	..	..	17	17	3	..	...
Kings County Hospital[1-3]	Brooklyn, N. Y.										
Buffalo State Hospital[1-3]	Buffalo, N. Y.	D. Whitehead	3,776	298	376	108	2	6	3	..	394.60
Edward J. Meyer Memorial Hospital[1]	Buffalo, N. Y.	S. M. Small	2,441	1,538	84	23	1	3	2	..	179
Central Islip State Hospital[1-3]	Central Islip, N. Y.	F. J. O'Neill	11,192	3,317	806	231	6	18	3	..	394.61
Hillside Hospital[1-3]	Glen Oaks, N. Y.	A. S. Lenzner	488	4,615	..	..	6	13	3	10	200
Gowanda State Homeopathic Hospital[1-3]	Helmuth, N. Y.	R. V. Foster	3,067	1,179	229	38	6	12	2	..	395
Meadowbrook Hospital[1-3]	Hempstead, N. Y.	R. R. Steen	858	58	21	17	1	2	1	..	225
Pinewood Sanitarium[1-3]	Katonah, N. Y.	L. Wender	337	...	4	..	1	1	1	..	400
Kings Park State Hospital[1-3]	Kings Park, N. Y.	C. Buckman	11,368	1,040	637	198	2	8	2	..	394.16
River Crest Sanitarium	Long Island City, N. Y.	J. C. Kindred	938	1,810	17	5	..	2	1	..	250
Marcy State Hospital[1-3]	Marcy, N. Y.	G. L. Warner	2,872	591	205	12	5	15	2	..	394.60
Middletown State Homeopathic Hospital[1-3]	Middletown, N. Y.	W. A. Schmitz	3,860	1,168	247	68	6	6	2	..	394.60
Bellevue Hospital Center, Division III— New York University College of Medicine[1-3]	New York City	L. I. Sharp	10,933	11,576	593	161	23	65	3	58	98
Manhattan State Hospital[3]	New York City	J. H. Travis	3,345	1,440	421	82	8	18	3	59	394.60
Mt. Sinai Hospital[1-3]	New York City	M. R. Kaufman	111	7,426	2	..	3	9	2	..	...
New York Hospital[1-3]	New York City	O. Diethelm	308	8,307	..	..	4	13	3	..	50
New York State Psychiatric Institute[1-3]	New York City	N. D. C. Lewis	376	1,139	..	..	7	21	3	..	394.60
New York University—Bellevue Medical Center University Hospital[1-3]	New York City	(See also Bellevue Hospital Center, Division III) S. B. Wortis	21	4,627	..	..	2	2	1	58	85
Roosevelt Hospital[1-3]	New York City	R. W. Laidlaw	62	2,943	1	..	..	1	1	..	...
St. Lawrence State Hospital[1-3]	Ogdensburg, N. Y.	G. F. Elting	2,733	260	153	34	4	8	2	..	394.60
Rockland State Hospital[1-3]	Orangeburg, N. Y.	A. M. Stanley	8,877	4,187	453	101	..	..	3	10	394.60
Stony Lodge[1-3]	Ossining, N. Y.	B. C. Glueck	100	10,000	1	1	2	2	1	..	200
High Point Hospital[1-3]	Port Chester, N. Y.	A. Gralnick	121	...	1	..	3	3	1	..	300
Hudson River State Hospital[1-3]	Poughkeepsie, N. Y.	O. A. Kilpatrick	5,936	9,879	439	46	4	4	2	62	394.61
Creedmoor State Hospital[1-3]	Queens Village, N. Y.	H. A. Laburt	6,078	3,362	387	56	9	33	2	..	394.60
Rochester State Hospital[1-3]	Rochester, N. Y.	C. F. Terrence	3,560	1,891	427	53	2	7	3	64	...
Strong Memorial-Rochester Municipal Hospitals[1-3]	Rochester, N.Y.	J. Romano	1,013	7,635	4	3	4	12	3	63	41.66
Ellis Hospital[1]	Schenectady, N. Y.	E. Davidoff	713	5,809	8	..	2	3	2	..	...
Syracuse Psychopathic Hospital[1-3]	Syracuse, N. Y.	R. F. Binzley	604	1,557	6	2	2	6	3	66	393
Letchworth Village[1-3]	Thiells, N. Y.	H. C. Storrs	424	35	61	30	2	3	1	..	394.60
Utica State Hospital[1-3]	Utica, N. Y.	B. B. Young	2,802	1,381	306	68	..	4	2	..	394.60
Grasslands Hospital[1-3]	Valhalla, N. Y.	F. V. Rockwell	1,186	1,531	21	10	2	7	3	..	125
Pilgrim State Hospital[1-3]	W. Brentwood, N. Y.	H. J. Worthing	12,896	2,815	1,164	337	20	40	3	..	390.64
New York Hospital—Westchester Division[1-3]	White Plains, N. Y.	J. H. Wall	716	...	18	9	4	9	3	..	150
Willard State Hospital[1-3]	Willard, N. Y.	K. Keill	3,472	3,057	189	48	4	8	2	..	394.61
Harlem Valley State Hospital[1-3]	Wingdale, N. Y.	L. P. O'Donnell	6,051	1,404	333	112	3	6	2	55	394.61
North Carolina Memorial Hospital[1-3]	Chapel Hill, N. C.	G. C. Ham	65	.....	...	..	5	8	3	..	...
Duke Hospital[1-3]	Durham, N. C.	H. Lowenbach	392	2,460	..	..	3	6	3	..	100
State Hospital of Raleigh[1-3]	Raleigh, N. C.	D. A. Young	2,327	...	112	34	4	8	2	..	300
Graylyn North Carolina Baptist Hospital[1-3]	Winston-Salem, N. C.	L. J. Thompson	2	790	..	..	..	2	3	..	41.66
Windsor Hospital[1-3]	Chagrin Falls, Ohio	J. H. Nichols	688	...	6	..	..	1	1	70	300
Christ Hospital[1]	Cincinnati	H. D. Fabing	602	...	7	5	1	1	1	..	200
Cincinnati General Hospital[1-3-13]	Cincinnati	M. Levine	1,364	11,246	14	6	11	33	3	68	...
Longview State Hospital[1-3]	Cincinnati	D. Goldman	4,089	2,100	292	85	3	6	1	..	275
Cleveland Clinic Hospital[1-3]	Cleveland	L. J. Karnosh	...	...	..	..	1	2	2	70	175
Cleveland Receiving Hospital[1-3]	Cleveland	W. G. Stover	1,092	757	20	9	..	..	2	..	460
University Hospitals[1-3]	Cleveland	D. D. Bond	155	4,983	1	..	3	12	2	71	42.50
Columbus State Hospital[1-3]	Columbus, Ohio	B. Kovitz	3,305	1,100	221	120	6	18	2	10	440
University Hospitals Columbus Receiving Hospital[1]	Columbus, Ohio	R. M. Patterson	410	372	1	1	5	15	3	10	291.75
Massillon State Hospital[1-3]	Massillon, Ohio	A. G. Hyde	3,290	1,025	224	45	2	4	1	..	224
Harding Sanitarium[1]	Worthington, Ohio	H. S. Evans	705	5,653	16	2	2	5	2	..	...
Central State Hospital[1]	Norman, Okla.	H. B. Witten	4,573	...	262	..	4	8	1	..	...
Oregon State Hospital[1]	Salem, Ore.	D. K. Brooks	5,679	...	448	161	..	4	1	..	571
Allentown State Hospital[1]	Allentown, Pa.	R. W. Goshorn	2,913	...	171	15	3	3	1	..	225.50
Danville State Hospital[1]	Danville, Pa.	V. J. Cassome	2,996	1,273	162	25	10	10	2	..	283.50
Embreeville State Hospital	Embreeville, Pa.	....	.....		.....	.....		..	..	1	...
Harrisburg State Hospital[1-3]	Harrisburg, Pa.	H. K. Petry	3,022	358	180	57	3	6	2	..	393.50
Norristown State Hospital[1]	Norristown, Pa.	A. P. Noyes	6,577	4,602	308	85	4	8	3	..	393.50
Albert Einstein Medical Center, Southern Division[1-3]	Philadelphia	P. Sloane	12	2,924	2	2	..	1	1	..	125
Friends Hospital[1-3]	Philadelphia	T. L. Dehne	468	575	8	2	2	4	2	..	250
Hospital of the University of Pennsylvania[1-3]	Philadelphia	K. Appel	...	9,835	..	..	..	7	2	..	...
Institute of The Pennsylvania Hospital[1-3]	Philadelphia	L. H. Smith	362	3,843	1	..	12	24	2	72	166.67
Jefferson Medical College Hospital[1-3]	Philadelphia	B. L. Keyes	53	2,156	1	..	..	..	1	..	...
Pennsylvania Hospital Department for Mental and Nervous Diseases[1-3]	Philadelphia	L. H. Smith	566	...	23	..	12	24	2	72	166.67
Philadelphia General Hospital[1-3]	Philadelphia	J. F. Stouffer	2,088	5,430	76	20	3	8	3	..	112.34
Philadelphia Psychiatric Hospital[1-3]	Philadelphia	N. W. Winkelman	554	1,387	1	..	4	8	2	..	166.66
Philadelphia State Hospital[1-3]	Philadelphia	E. L. Sielke	6,893	830	309	25	6	12	2	..	293.50
Temple University Hospital[1-3]	Philadelphia	O. S. English	135	10,624	..	..	2	6	3	74	50
St. Francis Hospital[1-3]	Pittsburgh	H. L. Mitchell	2,850	445	57	15	1	3	2	..	150
Western Psychiatric Institute and Clinic	Pittsburgh	H. W. Brosin	289	4,189	5	4	10	30	3	75	272.50
Warren State Hospital[1-3]	Warren, Pa.	R. Israel	3,990	295	347	20	8	18	2	..	393
Woodville State Hospital[1]	Woodville, Pa.	R. J. Phifer	3,196	100	200	2	4	4	1	..	393.50
State Hospital for Mental Diseases[1-3]	Howard, R. I.	John F. Regan	4,720	600	350	83	8	14	2	..	...
Butler Hospital[1-3]	Providence, R. I.	H. H. Babcock	291	1,333	23	4	2	6	2	..	170

Numerical and other references will be found on pages 373 and 374.

23. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered ^{8}	Total Residencies Offered ^{8}	Length of Approved Program (Years)	Program Identification	Beginning Stipend (Month)
Charles V. Chapin Hospital $^{1-3}$	Providence, R. I.	W. N. Hughes	854	416	12	5	2	2	1	..	412.75
Emma Pendleton Bradley Home $^{1-3}$	Riverside, R. I.	M. W. Laufer	80	350	..	..	..	3	1	..	250
Gailor Psychiatric Hospital $^{1-3}$	Memphis, Tenn.	T. S. Hill	334	5,537	1	..	1	3	3	..	200
Vanderbilt University Hospital $^{1-3}$	Nashville, Tenn.	W. F. Orr	108	1,540	..	..	2	6	3	75	50
Beverly Hills Clinic & Sanitarium $^{1-3}$	Dallas, Texas	A. J. Schwenkenberg	1,085	2,000	12	3	2	4	1	..	500
Parkland Hospital $^{1-3}$	Dallas, Texas	G. Witt	399	935	5	2	2	4	3	10	50
Timberlawn	Texas	G. F. Witt	580	...	3	..	3	6	2	..	200
University o	Texas	T. H. Harris	2,211	5,659	19	5	9	27	3	77	...
Salt Lake C	, Utah	C. H. Branch	364	941	2	2	..	10	2	..	...
Brattleboro Retreat	Brattleboro, Vt.	...	...	...	..	..	..	..	1	..	...
Vermont State Hospital $^{1-3}$	Waterbury, Vt.	R. A. Chittick	1,727	...	144	25	2	4	2	..	300
University of Virginia Hospital $^{1-3}$	Charlottesville, Va.	D. C. Wilson	684	1,026	7	2	8	20	3	80	220
Medical College of Virginia—Hospital Division $^{1-3}$	Richmond, Va.	R. F. Gayle, Jr.	729	3,531	7	1	1	3	3	..	...
Eastern State Hospital ^{1}	Williamsburg, Va.	G. L. Jones	2,877	...	233	42	2	9	2	81	522.67
Western State Hospital ^{1}	Fort Steilacoom, Wash.	E. A. Posell	4,291	...	349	129	5	9	2	..	471
Eastern State Hospital $^{1-3}$	Medical Lake, Wash.	...	2,781	796	202	7	2	8	2	..	400
Pinel Foundation $^{1-3}$	Seattle, Wash.	A. Marshall	174	2,636	1	..	1	3	1	..	350
University Hospitals $^{1-3}$	Madison, Wis.	W. J. Bleckwenn	1,145	3,318	18	12	4	12	3	..	50
Milwaukee County Hospital for Mental Diseases ^{1}	Milwaukee, Wis.	M. Kasak	1,998	549	27	14	3	9	2	10	100
Milwaukee Sanitarium $^{1-3}$	Wauwatosa, Wis.	J. A. Kindwall	626	...	..	..	..	1	1	..	...
Queen's Hospital $^{1-3}$	Honolulu, T. H.	J. G. Lynn	595	231	..	..	3	4	2	..	135
Territorial Hospital ^{1}	Oahu, T. H.	R. A. Kimmick	1,700	1,500	..	..	2	4	2	..	633 33

PSYCHIATRY PROGRAM IDENTIFICATION

10. Service in child psychiatry.
11. Six months service at Los Angeles County Hospital, Los Angeles.
12. Nine months service at Mount Zion Hospital, six months at Langley Porter Clinic and service in child psychiatry, San Francisco.
13. Three months of service at Napa State Hospital, San Francisco Hospital, Strickton State Hospital, Sonoma State Home and San Quentin Prison; and six months at Colwell Memorial Hospital.
14. Three months service Fort Miley Veterans Administration Hospital, San Francisco, and Langley Porter Clinic, San Francisco; may include elective services at University of California Hospital, Mount Zion Hospital and Stanford University (Lane) Hospital, San Francisco.
15. Three months service at Pacific Colony Hospital, Spadra and three months service in child psychiatry at Camarillo State Hospital.
16. Affiliate services at Colorado General and Denver General Hospitals.
17. Affiliate service at Veterans Administration Hospital, West Haven, Connecticut State Hospital, Fairfield State Hospital, Norwich State Hospital and service in child psychiatry.
18. Twelve months service at University Services, Grace-New Haven Community Hospital, New Haven, Connecticut.
19. Six months service at Governor Bacon Health Center, Delaware City.
20. Two months service at George Washington University Hospital, Washington, D. C.
21. Affiliate service at University Hospital, Augusta, Georgia.
22. Twelve months service at the Neuropsychiatric Institute of the University of Illinois including service in child psychiatry.
23. Eighteen months affiliate service including service at the Neuropsychiatric Institute of the University of Illinois and three months in child psychiatry.
24. Affiliate service at Neuropsychiatric Institute of the University of Illinois and service in child psychiatry.
25. Three months service at Veterans Administration Hospital, Downey, Illinois and service in child psychiatry.
26. Six months service at Veterans Administration Hospital, Hines, Illinois. May include service in child psychiatry.
27. Six months service in child psychiatry.
28. Integrated program including service at Veterans Administration Hospital, Indianapolis General Hospital and Indiana University Medical Center and Affiliated Hospitals, Indianapolis.
29. Integrated program including service at Veterans Administration Hospital, Menninger Sanitarium and Topeka State Hospital, Topeka, Kansas.
30. Four months service at University of Louisville Services, Louisville, Kentucky and four months service at Cincinnati General Hospital, Cincinnati, Ohio.
31. Three months service at University of Louisville Services, Louisville, Kentucky.
32. Twelve months service at University of Louisville Services. May include four months service at Central State Hospital; four months service at Louisville General Hospital.
33. Four months service at Central State Hospital and service in child psychiatry.
34. Integrated program including service at Tulane University Unit, Charity Hospital, New Orleans, and Veterans Administration Hospitals, New Orleans, and Gulfport, Mississippi.
35. Six months service in child psychiatry and twelve months service at South Louisiana State Hospital.
36. Service in child psychiatry; six months service at Veterans Administration Hospital, Perry Point, Maryland.
37. Three months service in child psychiatry at Johns Hopkins Hospital (Harriet Lane House), Baltimore, Maryland.
38. Twelve months service at Boston State Hospital and service in child psychiatry.
39. Twelve-eighteen months service at Veterans Administration Hospital, Boston (Jamaica Plain), Massachusetts, and six months service in child psychiatry.
40. Integrated program including service at Massachusetts General Hospital and McLean Hospital, Waverly.
41. Twelve months service at University Hospital, Ann Arbor, Mich.
42. University Hospital, Ann Arbor, Michigan.
43. Three months service Coldwater State Home and Training School, Caro State and Ionia State Hospitals and service in child psychiatry.
44. Six months service in child psychiatry at Children's Hospital, Detroit.
45. Six months service at City of Detroit Receiving Hospital, Children's Hospital, Detroit, and Wayne County General Hospital and Infirmary, Eloise, Michigan.
46. University of Minnesota Hospitals, Minneapolis, Minnesota.
47. Three months service at Rochester State Hospital, Rochester, Minn.
48. Affiliate service at Barnes Hospital, St. Louis and three months at St. Louis State Hospital.
49. Six months service at Barnes Hospital, St. Louis, Missouri.
50. Service at St. Louis State Hospital and St. Louis City Hospital.
51. Service at Lutheran Hospital, Omaha.
52. Service at University of Nebraska Hospital.
53. Affiliate service at University of Nebraska Hospital and Creighton Memorial-St. Joseph Hospital, Omaha, Nebraska.
54. Six months service at Newark City Hospital; three months at New Jersey State Hospital and three months in child psychiatry.
55. Three months service at Albany Hospital, Albany, New York.
56. Affiliate services at Edward J. Meyer Memorial Hospital and Buffalo State Hospital.
57. Six months service at King's County Hospital, Brooklyn, New York.
58. Integrated program with service at Bellevue Hospital Center and University Hospital.
59. Six months service at Mount Sinai Hospital, New York City.
60. Service in child psychiatry. May include six months service at Mount Sinai Hospital and three months at Manhattan State Hospital.
61. Twelve months service at New York Hospital and four months at Veterans Administration Hospital, New York City (Bronx), New York.
62. Three months service at Grasslands, Rockland State, Albany Hospitals and Letchworth Village.
63. Six months service at Rochester State Hospital, Rochester, New York.
64. Six months service at Strong Memorial-Rochester Municipal Hospitals, Rochester.
65. Affiliate service at Strong Memorial-Rochester Municipal Hospitals.
66. Three months service at Syracuse Memorial, Binghamton, Syracuse and Willard State Hospitals, service at Craig Colony and service in child psychiatry.
67. Affiliate service at State Hospitals at Raleigh and Butner, North Carolina.
68. Eighteen months service at Duke Hospital, Durham, North Carolina.
69. Three months service at Longview State and Jewish Hospitals, Cincinnati.
70. Integrated program including service at Cleveland Clinic and Windsor Hospital.
71. Integrated program including service at University Hospital and Veterans Administration Hospital, Cleveland, Ohio.
72. Integrated program with service at Institute of the Pennsylvania Hospital and Pennsylvania Hospital Department for Mental and Nervous Diseases.
73. Affiliate services at Temple University Hospital, Institute of Pennsylvania, Hospital of the Woman's Medical College of Pennsylvania.
74. Six months service at Philadelphia General Hospital and service in child psychiatry.
75. Two months affiliate service for institutional care.

76. Integrated program including servic Hos-
pital, Veterans Administration Hosp nis-
tration Hospital, Murfreesboro and ille.
on,

77. Four months affiliate service at S
Texas.

78. Service in child psychiatry at Jefferson Davis Hospital, Houston, Texas.
79. Six months affiliate service at Veterans Administration Hospital, Salt Lake City, Utah and affiliate services at State Hospital, Provo, Utah.
80. Integrated program including service at University of Virginia Hospital, Charlottesville and Veterans Administration Hospital, Roanoke, Va.
81. Affiliate service at Southwestern State Hospital, Marion and Lynchburg State Colony, Lynchburg, Va.
82. Six months service at Medical College of Virginia—Hospital Division, Richmond and service in child psychiatry.
83. Six months service at Veterans Administration Hospital, American Lake, Washington and six months in child psychiatry.

24. PULMONARY DISEASES

The following services have been approved for one year of training by the Council and the Subspecialty Board for Pulmonary Diseases of the American Board of Internal Medicine.

Hospitals, 110; Assistant Residencies and Residencies, 435

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL									
UNITED STATES ARMY									
Fitzsimons Army Hospital[66]	Denver, Colo.	O. W. Tempel	3,115	2,724	20	18	12	12	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
Freedmen's Hospital[1-3]	Washington, D. C.	H. M. Payne	136	6,091	37	12	..	3	...
VETERANS ADMINISTRATION									
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	K. M. Smith	790	4,016	51	39	..	2	...
Veterans Admin. Hospital[1-3]	Rutland Heights, Mass.	S. T. Allison	1,121	1,335	47	36	1	1	...
Veterans Admin. Hospital[1-3]	Minneapolis	W. B. Tucker	843	622	48	35	..	..	...
Veterans Admin. Hospital[1-3]	Excelsior Springs, Mo.	R. K. Smith	680	131	16	7	3	12	...
Veterans Admin. Hospital[1]	Albuquerque, N. Mex.	W. S. Klein	973	2,554	18	15	1	1	...
Veterans Admin. Hospital[1-3]	Castle Point, N. Y.	C. F. Kaufman	1,103	286	39	32	2	2	...
Veterans Admin. Hospital[1-3]	Sunmount, N. Y.	J. W. Raleigh	1,025	1,592	14	6	3	3	...
Veterans Admin. Hospital[1-3]	Oteen, N. C.	W. S. Schwartz	2,671	4,110	92	52	6	6	...
Veterans Admin. Hospital[1-3]	Brecksville, Ohio	J. O'Hale	394	.....	20	9	3	3	...
Veterans Admin. Hospital[1-3]	Memphis, Tenn.	S. Phillips	433	335	20	13	3	3	...
Veterans Admin. Hospital[1-3]	Houston, Texas	D. E. Jenkins	813	446	52	49	..	2	...
Veterans Admin. Hospital[1]	McKinney, Texas	D. O. Shields	394	698	14	9	2	4	...
Veterans Admin. Hospital[1]	Richmond, Va.	J. P. Williams	544	2,743	33	17	..	2	...
Veterans Admin. Hospital[1-3]	Madison, Wis.	J. K. Curtis	491	83	4	3	5	8	...
Veterans Admin. Hospital[1]	Milwaukee	R. Hemphill	582	804	25	22	2	2	...
NONFEDERAL									
City of Hope[1-3]	Duarte, Calif.	A. E. T. Rogers	438	.....	19	9	5	5	300
Arroyo Del Valle Sanatorium[1-3]	Livermore, Calif.	J. T. Duncan	438	1,417	7	2	1	1	291
Barlow Sanatorium[1]	Los Angeles	H. W. Bosworth	226	1,147	2	..	2	2	100
Bret Harte Sanatorium[1]	Murphys, Calif.	C. N. Reese	630	6,889	28	4	3	3	420
San Diego County General Hospital[1-3]	San Diego	M. J. Brown	317	2,572	27	9	1	3	150
San Francisco Hospital	San Francisco								
Stanford University Service[1]		H. C. Hinshaw	400	.....	56	9	1	2	175
University of California Service[1]		S. M. Farber	436	.....	54	12	1	3	175
Santa Clara County Hospital[1]	San Jose, Calif.	R. M. Manson	177	12,993	22	9	1	3	425
Fairmont Hospital of Alameda County[1-3]	San Leandro, Calif.	J. L. Eaton	504	2,267	49	9	1	2	170
Tulare-Kings Counties Joint Tuberculosis Hosp.[1-3]	Springville, Calif.	W. A. Winn	472	2,615	12	7	2	2	500
National Jewish Hospital[1-3]	Denver	S. H. Dressler	527	380	18	11	2	5	200
Norwich State Tuberculosis Hospital[1-3]	Norwich, Conn.	G. C. Wilson	805	1,690	42	22	1	1	260
Laurel Heights State Tuberculosis Sanatorium[1-3]	Shelton, Conn.	E. J. Lynch	503	2,795	21	9	2	2	200
Gallinger Municipal Hospital[1-3]	Washington, D. C.	S. Katz	271	565	49	7	1	3	100
Tuberculosis Sanatorium.....(Glen Dale, Md., P. O.)	Washington, D. C.	M. Weiss	1,148	.....	50	18	4	4	283.33
City of Chicago Municipal Tuberculosis Sanitarium[1-3]	Chicago	M. R. Lichtenstein	1,274	161,600	133	88	6	6	175
Peoria Municipal Tuberculosis Sanitarium[1-3]	Peoria, Ill.	D. Morse	185	1,340	7	3	1	1	250
Rockford Municipal Tuberculosis Sanatorium	Rockford, Ill.	W. J. Bryan	278	3,367	..	..	..	2	...
Lake County Tuberculosis Sanatorium[1-3]	Waukegan, Ill.	C. K. Petter	279	8,617	18	10	1	2	200
Indianapolis General Hospital[1]	Indianapolis	J. Stygall	120	3,426	12	3	1	1	320
Sunnyside Sanatorium[1]	Indianapolis	F. L. Jennings	371	1,504	37	11	1	1	...
Healthwin Hospital[1]	South Bend, Ind.	E. W. Custer	366	1,106	18	6	2	2	300
Charity Hospital of Louisiana									
Louisiana State University Unit[1-3]	New Orleans	E. Hull	383	5,854	75	12	1	3	100
Tulane University Unit[1-3]	New Orleans	G. E. Burch	355	6,191	62	9	1	3	100
Central Maine Sanatorium[1-3]	Fairfield, Maine	W. B. Grow	323	2,219	23	11	1	1	75
Baltimore City Hospitals[1-3]	Baltimore	H. V. Langeluttig	518	.....	36	13	2	4	75
Boston Sanatorium[1-3]		J. A. Foley	1,022	.....	75	18	..	5	230
Fall River General			.....	.....	..	..	..	..	...
Middlesex County S		F. P. Dawson	616	19,428	38	16	2	2	445
Westfield State San	Westfield, Mass.	J. M. Houser	266	4,820	12	8	3	3	490
Belmont Hospital[1-3]	Worcester, Mass.	O. Feinsilver	255	3,614	24	6	2	2	500
American Legion Hospital[1]	Battle Creek, Mich.	E. H. Roberts	555	459	15	..	1	1	...
Henry Ford Hospital[1-3]	Detroit	B. E. Goodrich	.....	.....	..	..	1	4	225
Herman Kiefer Hospital[1-3]	Detroit	P. T. Chapman	2,159	76,908	114	57	12	13	456
Michigan State Sanatorium[1]	Howell, Mich.	E. W. Gentles	612	2,781	17	..	4	4	711
Ingham Sanatorium[3]	Lansing, Mich.	C. J. Stringer	277	28,820	16	7	1	2	400
Morgan Heights Sanatorium[1-3]	Marquette, Mich.	J. R. Acocks	174	4,862	9	8	1	1	400
Wm. H. Maybury Sanatorium[1]	Northville, Mich.	W. L. Howard	1,586	.....	72	25	3	3	456
Nopeming Sanatorium[1]	Nopeming, Minn.	G. A. Hedberg	581	6,638	17	12	..	2	...
Glen Lake Sanatorium[1-3]	Oak Terrace, Minn.	R. H. Frost	1,001	31,063	61	35	..	1	280
Mississippi State Tuberculosis Sanatorium[1]	Sanatorium, Miss.	H. Boswell	900	2,329	24	1	2	2	300
Robert Koch Hospital[1-3]	Koch, Mo.	B. Friedman	1,103	.....	89	10	5	15	215.50
St. Mary's Group of Hospitals[1-3]	St. Louis		336	2,385	24	9	1	1	65
New Jersey Sanatorium for Tuberculosis Diseases[1-3]	Glen Gardner, N. J.	J. A. Smith	505	3,229	16	10	5	5	455
Berthold S. Pollak Hospital for Chest Diseases	Jersey City, N. J.	B. P. Potter	1,462	4,528	154	33	8	8	...
Bergen Pines County Hospital[1-3]	Paramus, N. J.	R. R. Little	321	11,260	57	19	2	2	200
Essex County Sanatorium[1-3]	Verona, N. J.	A. M. Hicks	704	.....	81	30	3	5	308.33
Albany Hospital[1-3]	Albany, N. Y.	R. J. Erickson	286	1,666	27	20	2	3	135
Montefiore Hospital Country Sanatorium[1-3]	Bedford Hills, N. Y.	R. G. Bloch	487	.....	..	..	3	4	...
Kings County Hospital[1-3]	Brooklyn	C. Hamilton	612	10,374	53	9	4	4	150
Kingston Avenue Hospital[1-3-163]	Brooklyn	I. Kaufman	268	.....	27	9	5	5	150.83
Edward J. Meyer Memorial Hospital[1]	alo	H. G. Dayman	624	1,339	52	18	..	1	179
Nassau County Tuberculosis Hospital	Y.	J. G. Carlton	479	13,203	36	28	4	6	150
Hermann M. Biggs Memorial Hospita	Y.	N. S. Lincoln	475	8,394	13	4	1	3	400
Triboro Hospit[1-3]	Jamaica, N. Y.	R. H. Bennett	1,146	11,515	73	24	12	12	150
Niagara Sanat	Lockport, N. Y.	A. N. Aitken	331	9,081	13	12	3	3	296.66
Mount Morris	nt Morris, N. Y.	F. L. Armstrong	456	7,767	18	14	2	2	413.72
Bellevue Hospital Center, Div. I—Columbia University[1-3]	New York City	J. B. Amberson	2,720	10,972	202	37	..	22	98
Lenox Hill Hospital[1-3]	New York City	F. J. McCarthy	75	742	3	..	1	1	180
Manhattan General Hospital[3]	New York City		.....	.....	..	..	..	..	...
Metropolitan Hospital[1-3]	New York City	G. G. Ornstein	663	11,787	67	9	3	5	150
Montefiore Hospital[1-3]	New York City	R. G. Bloch	413	2,449	21	14	3	4	60
Morrisania City Hospital[1-3]	New York City	E. H. Rubin	.....	4,023	..	..	1	1	98
New York City Hospital[1-3]	New York City	J. S. Edlin	490	4,734	29	8	1	1	150
St. Joseph's Hospital for Chest Diseases[3-107-211]	New York City	J. F. McCarthy	591	.....	16	2	3	5	175
Seton Hospital[1-3]	New York City	E. H. Rubin	714	1,179	39	20	9	9	150
Willard Parker Hospital[1-3]	New York City	H. Alexander	277	.....	7	4	3	3	150
Homer Folks Tuberculosis Hospital[1-3]	Oneonta, N. Y.	R. Horton	494	7,132	32	13	2	3	400
Municipal Sanatorium[1-3]	Otisville, N. Y.	J. S. Edlin	968	.....	..	..	7	7	170

Numerical and other references will be found on pages 373 and 374.

24. PULMONARY DISEASES—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Ray Brook State Tuberculosis Hospital[1-3]	Ray Brook, N. Y.	F. Beck	596	5,682	..	..	4	4	400
Iola-Monroe County Tuberculosis Sanatorium[1-3-216]	Rochester, N. Y.	J. M. MacMillan	629	17,540	57	33	..	6	315.62
Schenectady County Tuberculosis Hospital[1-3]	Schenectady, N. Y.	J. M. Blake	239	3,065	..	..	2	2	233.33
Sea View Hospital[1-3]	Staten Island, N. Y.	G. G. Ornstein	2,732	455	288	55	20	20	150
Trudeau Sanatorium[1-3]	Trudeau, N. Y.	G. M. Meade	296	.....	4	3	2	2	100
Grasslands Hospital[1-3]	Valhalla, N. Y.	W. G. Childress	571	3,217	23	7	2	7	125
Duke Hospital[1-3-228]	Durham, N. C.	E. E. Menefee	160	647	..	..	..	2	200
North Carolina Sanatorium for the Treatment of Tuberculosis[1-3]	McCain, N. C.	W. M. Peck	1,134	2,221	51	20	2	6	...
City Hospital[1-3]	Cleveland	R. C. McKay	441	.....	77	26	..	..	322
Benjamin Franklin Hospital[1]	Columbus	H. I. Humphrey	560	15,761	40	18	2	2	300
University Hospitals Ohio Tuberculosis Hospital[1-3]	Columbus	R. J. Atwell	218	.....	..	..	2	8	283
Sunny Acres, Cuyahoga County Tuberculosis Hospital[1-3]	Warrensville, Ohio	R. C. McKay H. G. Curtis	747	77,389	36	16	2	2	416
Mahoning Tuberculosis Sanatorium[1-3]	Youngstown, Ohio	H. H. Teitelbaum	286	2,550	16	10	2	2	300
Eagleville Sanatorium[1]	*Eagleville, Pa.*	....	365	.....	15	3	1	2	...
Pennsylvania State Hospital[1-3]	Hamburg, Pa.	A. R. Judd C. L. Brown	962	191	62	21	2	2	341
Jefferson Medical College Hospital[1-3]	Philadelphia	J. E. Deitrick	966	.....	20	9	1	1	...
Philadelphia General Hospital[1-3]	Philadelphia	W. Weiss	904	.....	97	30	2	2	112.34
Tuberculosis League Hospital[1-3]	Pittsburgh	C. H. Marcy	452	15,164	17	4	2	2	250
Mount Alto State Sanatorium (Pennsylvania State [illegible]	South Mountain, Pa.	H. C. Dooling	1,484	1,182	58	7	2	11	300
[illegible][66]	Memphis, Tenn.	S. C. Carter	554	143,794	60	16	1	2	200
[illegible]	Dallas, Texas	E. Mendenhall	106	.....	16	3	1	1	50
		....	...	.....	..	..	..	..	...
Firland Sanatorium[1-3]	[illegible]	R. Davies	1,909	994	59	28	3	3	200
Muirdale Sanatorium[1]	Milwaukee	A. V. Cadden	1,252	3,584	45	16	..	1	258.92
Wisconsin State Sanatorium[1-3]	Statesan, Wis.	E. F. White	248	.....	4	2	1	1	252.50
Leahi Hospital[1-3]	Honolulu, Hawaii	H. H. Walker	959	2,959	42	9	3	4	...

25. *RADIOLOGY*

The following services have been approved by the Council and the American Board of Radiology. As indicated in the column "Type of Training" approval has been extended in diagnostic roentgenology (D.R.); roentgenology (Roent)., including diagnostic and therapeutic; therapeutic radiology (Ther. Rad)., and radiology (Rad.), including roentgenology and therapeutic radiology.

Hospitals, 407; Assistant Residencies and Residencies, 1,398

FEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY											
Letterman Army Hospital[66]	San Francisco	E. A. Lodmell	Rad.	44,020	4,862	1,216	32	2	6	3	...
Fitzsimons Army Hospital[1-66]	Denver, Colo.	F. Y. Leaver	Roent.	69,215	2,403	475	71	2	6	3	...
Army Medical Center[1-66-67]	Washington, D. C.	H. I. Amory R. J. Healy	Rad.	69,313	10,136	1,641	405	3	9	3	...
Brooke Army Medical Center[66-280]	San Antonio, Texas	J. A. Isherwood	D.R.	70,046	7,646	122	160	3	9	3	...
Tripler Army Hospital[66]	Honolulu, T. H.	A. O. Haff	Roent.	71,687	1,557	348	356	..	..	3	...
UNITED STATES NAVY											
[illegible]	Oakland, Calif.	O. D. Burroughs	Roent.	38,444	1,739	124	20	..	8	2	...
[illegible]	San Diego, Calif.	....	Rad.	61,109	2,588	700	38	..	4	3	...
[illegible]	Great Lakes, Ill.	J. G. Bulgrin	D.R.	30,594	421	968	2	..	1	1	...
[illegible]	Bethesda, Md.	M. W. Mason	Roent.	36,382	4,455	169	12	..	2	2	...
[illegible]	Chelsea, Mass.	J. L. Hatch	Roent.	21,880	595	31	7	..	2	2	...
[illegible]	St. Albans, N. Y.	S. F. Williams	Roent.	40,367	1,996	94	50	..	2	3	...
[illegible]	Philadelphia, Pa.	C. Gartenlaub	Roent.	55,358	4,179	72	18	..	8	2	...
UNITED STATES PUBLIC HEALTH SERVICE											
U. S. Public Health Service Hospital[1-3-116]	New Orleans, La.	G. A. Shipman	D.R.	20,779	.....	...	...	1	8	2	...
U. S. Public Health Service Hospital[1]	Baltimore, Md.	I. Lewis	Rad.	20,579	4,708	871	125	1	4	3	...
U. S. Public Health Service Hospital[1-3]	Staten Island, N. Y.	W. M. Sennott	Roent.	24,431	1,219	305	6	2	4	2	...
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE											
Freedmen's Hospital[1-3]	Washington, D. C.	C. Kelly	Rad.	18,484	54	315	15	..	2	3	...
VETERANS ADMINISTRATION											
[illegible][1-3]	Tuskegee, Ala.	J. J. *Peters*	*D.R.*	12,962	.....	...	...	2	2	3	...
[illegible][1-3]	Long Beach, Calif.	F. Isaac	*Roent.*	48,832	3,481	1,872	6	6	6	2	...
[illegible][1-3]	Los Angeles	C. W. McClannahan	Rad.	74,658	9,901	1,781	73	2	8	3	...
[illegible][1]	*San Francisco*	W. W. Saunders	Roent.	18,744	3,115	171	12	1	3	2	...
[illegible][1-3-50]	Denver, Colo.	C. F. Ingersoll	D.R.	17,430	848	2	6	3	7	1	...
[illegible][1-249]	Newington, Conn.	A. B. Skorneck	D.R.	14,691	.....	30	...	2	4	2	...
[illegible][1-3]	Washington, D. C.	S. R. Bersack	Roent.	12,339	1,350	172	8	1	4	2	...
[illegible][1-72-76]	Atlanta, Ga.	I. R. Berger	Roent.	19,101	5,174	496	11	1	3	2	...
[illegible][1-3-74]	Augusta, Ga.	S. M. Roberts	D.R.	16,478	1,061	124	7	2	3	1	...
Veterans Admin. Hospital[1-99]	Hines, Ill.	F. L. Hussey	Rad.	90,470	18,191	1,397	56	4	10	3	...
[illegible][102]		(See Indiana University Medical Center Hospitals)									
[illegible]		M. M. Manalan	Roent.	17,773	3,031	221	18	1	3	2	...
[illegible][10]		P. J. Trier	Roent.	29,901	1,824	264	3	1	3	2	...
[illegible]	Iowa City, Iowa	G. S. Lodwick	Rad.	14,048	1,814	122	6	1	3	2	...
[illegible]	Wadsworth, Kans.	I. H. Lockwood	Roent.	28,799	2,442	60	2	4	10	2	...
[illegible]	Louisville, Ky.	(See University of Louisville Hospitals)									
[illegible]	[illegible]s, La.	C. P. Oderr	D.R.	15,453	2,500	175	6	1	4	2	...
[illegible]	[illegible]d, Md.	M. Ginsburg	Roent.	12,061	1,259	229	...	1	2	1	...
Veterans Admin. Hospital	[illegible] Mass.	E. Wissing	Roent.	33,275	3,784	158	18	2	4	2	...

Numerical and other references will be found on pages 373 and 374.

25. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin. Hospital [1-3-132]	Boston (West Roxbury), Mass.	M. J. LeMay	D.R.	.....	.....	...	...	3	3	1	...
Veterans Admin. Hospital [150]	Dearborn, Mich.	(See Wayne University Affiliated Hospitals)									
[illegible] [1-3]	Minneapolis	J. Jorgens	Roent.	38,919	3,647	301	30	..	8	3	...
[illegible] [1-3]	Jefferson Bks., Mo.	S. Kamberg	Roent.	16,722	5,219	1,151	48	2	6	1	...
[illegible] [1-3]	Brooklyn	W. Schlein	Rad.	26,930	4,419	219	6	2	3	2	...
[illegible] [1-3]	Buffalo	C. A. Priviteri	D.R.	24,139	3,053	141	1	..	1	2	...
[illegible] [1-3]	New York City	J. Stein	Rad.	72,088	13,317	715	114	3	9	3	...
[illegible] [1-3]	Cleveland	M. D. Sachs	Rad.	35,320	3,980	218	47	2	6	3	...
[illegible] [1-3]	Dayton, Ohio	F. C. Barald	D.R.	40,248	2,021	125	6	1	1	1	...
[illegible]	Oklahoma City	S. M. Glasser	D.R.	8,931	.....	29	...	..	1	1	...
[illegible]	Portland, Ore.	K. C. Hardesty	Roent.	20,391	3,910	378	13	1	2	3	...
[illegible]	Aspinwall, Pa.	S. G. Henderson	Roent.	18,939	6,561	273	4	2	6	3	...
[illegible]	Columbia, S. C.	H. Potozky	D.R.	15,280	.....	...	...	1	1	1	...
[illegible]	Memphis, Tenn.	B. E. Greenberg	Rad.	47,574	4,638	181	50	3	9	2	...
[illegible]	Nashville, Tenn.	D. E. Sherman	Roent.	22,472	2,485	234	12	1	3	2	...
[illegible]	Dallas, Texas	J. J. Sazame, Jr.	Rad.	12,478	2,431	146	32	1	4	3	...
[illegible]	McKinney, Texas	B. K. Lovell	Rad.	26,582	2,970	261	211	1	4	2	...
[illegible]	Salt Lake City	(See University of Utah Affiliated Hospitals)									
Veterans Admin. Hospital [1]	White River Jct., Vt.	N. W. Loud	Roent.	13,525	961	37	...	1	2	2	...
Veterans Admin. Hospital [1]	Richmond, Va.	S. Richman	Roent.	28,124	4,124	200	8	2	4	2	...
Veterans Admin. Hospital [1-207]	Milwaukee, Wis.	T. J. Pfeffer	Roent.	38,919	9,372	322	22	6	6	2	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Jefferson-Hillman Hospital [1-3]	Birmingham, Ala.	M. B. Carter	Rad.	27,435	780	20	227	2	4	3	...
Memorial Hospital [1-3]	Phoenix, Ariz.	D. D. Gain	D.R.	7,253	2,651	...	11	1	1	1	250
University Hospital [1]	Little Rock, Ark.	I. Meschan	Rad.	21,759	.....	...	109	1	3	3	120
Kern General Hospital [1-3]	Bakersfield, Calif.	S. W. Iseminger	D.R.	30,659	1,370	206	22	1	2	2	325
Herrick Memorial Hospital [1-3]	Berkeley, Calif.	H. P. Brean K. Dehlinger	D.R.	10,938	1,490	203	17	1	2	2	100
San Joaquin General Hospital [1-3]	French Camp, Calif.	A. Cove	Rad.	33,848	1,254	313	7	1	1	2	235
General Hospital of Fresno County [1-3]	Fresno, Calif.	C. L. Ould	D.R.	17,930	.....	...	9	1	1	1	...
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	H. J. Prichard G. Beckstrand	Rad.	12,842	5,203	100	87	1	2	3	150
Cedars of Lebanon Hospital [1-3]	Los Angeles	E. Freedman H. L. Jaffe	Rad.	17,618	6,204	...	21	1	4	3	150
Hospital of the Good Samaritan [1-3]	Los Angeles	J. D. Camp	Rad.	29,014	4,660	64	59	1	3	3	150
Los Angeles County Hospital [1]	Los Angeles	G. Jacobson	Rad.	80,302	.....	...	105	..	9	3	190
Presbyterian Hospital-Holmsted Memorial	Los Angeles	....	Rad.	.....	.....	...	...	..	..	1	...
Queen of Angels Hospital [1-3]	Los Angeles	L. S. Goin	Rad.	13,007	2,132	270	41	1	1	3	150
White Memorial Hospital [1-3]	'ngeles	W. L. Stilson	Rad.	11,806	4,491	756	79	2	6	3	146.25
Highland-Alameda County	Calif.	H. H. Jensen	Rad.	19,082	2,959	...	23	1	4	3	...
Collis P. and Howard Hunti	Calif.	R. S. Harrison	D.R.	10,730	2,078	...	...	1	2	2	...
Sutter General Hospital [1-3]	Calif.	R. S. Graham	Rad.	9,697	15,001	3,497	53	1	2	2	200
San Diego County General Hospital	San Diego, Calif.	E. L. Whitehead	Rad.	19,586	2,020	188	37	1	2	2	150
Children's Hospital [1-3]	San Francisco	G. G. King	Roent.	5,129	1,444	62	35	1	1	1	...
Franklin Hospital [1-3]	San Francisco	A. J. Williams	Roent.	12,440	3,211	160	5	1	1	1	125
St. Francis Memorial Hospital [1-3]	San Francisco	A. A. deLorimier	Rad.	19,030	3,277	1,093	36	1	2	2	300
St. Mary's Hospital [1-3]	San Francisco	C. S. Capp	Roent.	12,890	1,044	686	11	1	2	2	150
San Francisco Hospital	San Francisco	....	Roent.	36,379	2,047	22	..	..	..	3	175
Stanford University Service [1]		L. H. Garland	....	.....	.....	...	..	..	..	..	...
University of California Service [1]		A. J. Williams	....	.....	.....	...	..	..	..	..	...
Stanford University Hospitals [1-3]	San Francisco	H. S. Kaplan	Rad.	14,109	4,107	411	52	1	4	3	50
University of California Hospital [1-3]	San Francisco	R. S. Stone	Rad.	35,688	6,840	150	74	..	4	3	87
Santa Barbara Cottage Hospital [1-3]	Santa Barbara, Calif.	R. Gates J. T. Case	Rad.	11,656	2,259	198	119	1	3	3	115
Santa Monica Hospital [1]	Santa Monica, Calif.	R. L. Smith	Roent.	20,597	5,635	...	28	..	..	2	100
Glockner-Penrose Hospital [1-3]	Colorado Springs, Colo.	J. A. Del Regato	Ther. Rad.	13,907	9,849	1,119	8	2	3	3	155
St. Francis Hospital [1-3]	Colorado Springs, Col.	V. L. Bolton	Roent.	6,765	2,071	511	23	1	1	2	150
General Rose Memorial Hospital [1-3]	Denver	J. H. Weiss M. H. Levine	D.R.	8,934	829	...	...	1	1	1	160
[illegible]	Denver	K. D. A. Allen	Roent.	11,100	1,230	53	58	1	1	3	...
[illegible]	Denver	W. P. Stampfli	Roent.	8,969	330	1,989	15	1	2	2	150
'edical Center		....	....	.....	.....	...	...	3	10	..	150
tal [1-3-22]	Denver	R. R. Lanier	Roent.	25,826	4,976	294	62	..	..	3	...
l [1-3-22]	Denver	E. Salzman	D.R.	23,033	936	79	21	..	..	2	...
[illegible]	Conn.	J. J. Esposito	Rad.	12,671	2,037	10	90	1	2	2	125
[illegible]	Conn.	R. T. Ogden	Rad.	32,175	11,351	...	70	1	3	3	50
unity Hospital											
[illegible]	New Haven, Conn.	R. M. Lowman	Rad.	11,158	2,419	...	12	2	3	2	50
[illegible]	New Haven, Conn.	A. H. Janzen	Rad.	45,936	1,867	...	104	4	6	3	50
[illegible]	New Haven, Conn.	R. Shapiro	Rad.	16,886	3,567	71	101	2	4	3	100
St. Mary's Hospital [1-3]	Waterbury, Conn.	K. R. Kaess	Roent.	15,185	1,763	...	18	1	1	1	150
Waterbury Hospital [1]	Waterbury, Conn.	S. Blank	Roent.	13,565	2,071	...	30	1	2	2	125
Delaware Hospital [1-3]	Wilmington, Del.	W. W. Lattomus	D.R.	19,967	3,819	1,273	60	1	2	2	180
Central Dispensary and Emergency Hospital [1-3]	Washington, D. C.	J. E. Wissler	Rad.	14,652	2,438	20	17	1	3	3	150
Doctors Hospital [1-3]	Washington, D. C.	F. O. Coe	Rad.	21,857	8,891	1,798	101	1	4	3	150
Gallinger Municipal Hospital [1-3]	Washington, D. C.	S. Newman	D.R.	30,639	794	43	12	2	4	1	...
Garfield Memorial Hospital [1-3]	Washington, D. C.	A. O. Hampton	Rad.	10,773	4,232	742	11	..	..	3	160
Georgetown University Hospital [1-3-290]	Washington, D. C.	W. Baensch	Rad.	19,584	4,785	...	11	3	9	3	...
George Washington University Hospital [1-3]	Washington, D. C.	W. Stanbro	Rad.	17,859	4,526	335	21	2	4	3	130
Duval Medical Center [1-3]	Jacksonville, Fla.	Ivan Isaacs	D.R.	15,173	4,089	345	50	1	1	1	150
Jackson Memorial Hospital [1]	Miami, Fla.	H. E. Davis	Rad.	35,104	7,671	...	99	2	4	3	75
Mount Sinai Hospital [1-3]	Miami Beach, Fla.	A. G. Levin	D.R.	8,612	532	2	27	1	1	1	...
Crawford W. Long Memorial Hospital [1-3]	Atlanta, Ga.	R. A. Elmer	Rad.	13,954	1,552	300	30	1	1	1	87.50
Grady Memorial Hospital [1-3]	Atlanta, Ga.	H. S. Weens	Rad.	40,631	7,375	482	59	2	6	3	20
Piedmont Hospital [1]	Atlanta, Ga.	E. Smith	D.R.	6,218	745	...	...	1	1	1	160
University Hospital	Augusta, Ga.	L. P. Holmes S. W. Brown	Rad.	17,053	2,540	60	30	1	3	3	160
Emory University Hospital [1-3-72]	Emory University, Ga.	T. F. Leigh	Rad.	15,306	8,886	...	93	1	2	3	170
Augustana Hospital [1-3]	Chicago	D. S. Beilin	Roent.	13,648	2,369	...	...	1	2	3	150
Cook County Hospital [1-3]	Chicago	G. M. Landau	Rad.	94,395	22,275	3,543	98	5	5	3	175
Englewood Hospital [3]	Chicago	A. J. Rosenblate	Roent.	8,922	944	15	...	1	1	1	200
Illinois Masonic Hospital [1-3]	Chicago	J. H. Gilmore	Rad.	19,097	2,449	225	70	1	3	2	85
Mercy Hospital [1-3]	Chicago	W. W. Furey	Rad.	13,902	9,741	297	104	1	2	2	100
Michael Reese Hospital [1-3]	Chicago	R. A. Arens E. Uhlmann	Rad.	49,625	17,321	353	2,282	1	3	3	75
Mount Sinai Hospital [1-3]	Chicago	J. Arendt	Roent.	20,428	3,851	23	10	2	4	2	100

Numerical and other references will be found on pages 373 and 374.

25. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Northwestern University Medical Center											
Passavant Memorial Hospital [1-3-81]	Chicago	R. B. Lewis	Roent.	12,323	2,323	100	25	2	8	3	...
Presbyterian Hospital [1-3]	Chicago	F. H. Squire	Rad.	42,528	3,429	2,281	50	1	3	3	125
Provident Hospital [1-3]	Chicago	W. P. Quinn	Rad.	5,880	2,094	365	8	1	2	3	...
Ravenswood Hospital [1-3]	Chicago	D. Jenkinson	Roent.	10,217	2,369	...	31	1	3	3	100
St. Bernard's *Hospital* [1-3-94]	Chicago	B. C. Cushway E. K. Lewis	Rad.	9,963	2,437	420	230	1	2	2	200
St. Luke's Hospital [1-3]	Chicago	E. L. Jenkinson	Rad.	32,792	6,119	...	8	2	6	3	50
University of Chicago Clinics [1-3]	Chicago	P. C. Hodges	Rad.	30,234	12,344	542	74	2	8	3	175
University of Illinois Research and Educational Hospitals [1-3]	Chicago	R. A. Harvey	Rad.	57,318	.....	...	255	3	7	3	60
Wesley Memorial Hospital [1-3]	Chicago	A. H. Cannon	Rad.	34,230	2,543	128	75	1	3	3	50
Evanston Hospital [1-3]		R. G. Willy	Rad.	26,373	5,258	415	71	2	4	3	50
St. Francis Hospital [1-3]		A. C. Ledoux	Roent.	26,196	2,518	102	16	1	1	2	150
Little Company of Mary Hospital [1-3]	Evergreen Pk., Ill.	W. W. Furey	D.R.	32,386	2,135	1,417	61	1	1	1	175
St. Francis Hospital [1-3]	Peoria, Ill.	P. R. Dirkse	Roent.	20,196	3,435	422	7	1	2	2	...
Clinic Hospital [1]	Bluffton, Ind.	W. S. Tirman	Roent.	22,315	2,522	...	34	1	3	2	400
Protestant Deaconess Hospital [1]	Evansville, Ind.	A. A. *Hobbs*	*Rad.*	*15,452*	*2,342*	...	*35*	*1*	*1*	*1*	*150*
St. Joseph Hospital [1-3]	Ft. Wayne, Ind.	C. H. Warfield	Roent.	14,213	2,533	173	...	1	1	2	155
St. Margaret's Hospital [1]	*Hammond, Ind.*	*J. F. Larrabee*	*D.R.*	*13,112*	*1,907*	*398*	*15*	*1*	*1*	*1*	...
Indiana University Medical Center Hospitals											
Indianapolis General Hospital [1-102-103]	Indianapolis	W. Tosick	Rad.	23,957	3,428	332	27	1	3	2	170
Indiana University Medical Center [1]	Indianapolis	J. A. Campbell	Rad.	66,761	12,509	871	201	4	12	3	150
Veterans Admin. Hospital [1]	Indianapolis	M. M. Manalan	Roent.	17,773	3,034	221	18	1	3	2	...
Methodist Hospital [1-3]	Indianapolis	H. C. Ochsner	Rad.	36,489	3,360	3,919	51	1	1	3	...
St. *Elizabeth Hospital* [1-3]	*Lafayette, Ind.*	W. G. Hunsberger	Roent.	*8,864*	1,381	*355*	30	1	3	2	175
Ball Memorial Hospital [1-3]	Muncie, Ind.	B. W. Stocking	Roent.	16,622	3,453	...	22	1	1	2	...
Iowa Methodist Hospital [1-3-107]	Des Moines, Iowa	T. Burcham	Rad.	11,319	881	...	10	1	2	3	100
University Hospitals [1-3]	*Iowa City*	*H. D. Kerr*	*Rad.*	*55,902*	*15,045*	...	*121*	2	6	3	75
University of Kansas Medical Center [1-3]	Kansas City, Kans.	G. Tice	Rad.	23,791	6,612	960	108	3	4	3	125
St. Francis Hospital	Wichita, Kans.	J. R. Kline	D.R.	15,624	3,016	445	62	1	2	1	200
Wesley Hospital [1-3]	Wichita, Kans.	N. C. Nash	Rad.	27,278	3,572	4	25	1	1	1	200
Norton Memorial Infirmary [1-3]	Louisville, Ky.	J. C. Bell	Rad.	9,092	3,075	176	23	1	2	1	150
St. Joseph Infirmary [1-3]	Louisville, Ky.	S. E. Johnson	Rad.	14,922	8,875	1,274	145	1	3	3	...
University of Louisville Hospitals											
Louisville General Hospital [1-3-114]	Louisville, Ky.	E. L. Pirkey	.....	36,774	2,905	359	29	2	6	..	75
Veterans Admin. Hospital	*Louisville, Ky.*	W. H. Smith	.....	19,920	1,850	317	120	1	3	..	...
Baptist Hospital [1-3]	Alexandria, La.	H. O. Barker	Rad.	5,721	1,453	1,574	209	1	1	3	...
Charity Hospital of Louisiana											
Louisiana State University Unit [1-3]	New Orleans	M. Garcia	*Rad.*	*141,206*	*12,631*	2,565	427	5	15	3	*40*
Ochsner Foundation Hospital [1-3]	New Orleans	E. H. Little	Rad.	77,390	3,539	...	...	1	3	3	150
Southern Baptist Hospital [1]	New Orleans	L. J. Bristow	Rad.	20,183	6,030	631	56	1	8	3	225
Touro Infirmary [1-116]	New Orleans	A. Payzant	Rad.	24,101	2,400	168	56	1	3	3	35
Confederate Memorial Medical Center [1]	Shreveport, La.	G. M. Riley	Rad.	23,406	11,331	1,037	71	2	6	3	60
Eastern Maine General Hospital [1-3]	Bangor, Maine	H. A. Smith	Roent.	16,502	2,599	612	13	1	1	2	100
Central Maine General Hospital [1]	Lewiston, Maine	C. F. Miller	Roent.	10,177	1,192	94	70	1	1	2	150
Maine General Hospital [1-3]	Portland, Maine	J. Spencer	Rad.	29,606	3,254	63	34	1	3	3	100
Baltimore City Hospitals [1-3]	*Baltimore*	J. DeCarlo	D.R.	28,240	1,228	*392*	*3*	1	4	1	75
Johns Hopkins Hospital [1-3-129-284]	Baltimore	R. H. Morgan	Rad.	67,935	.....	...	201	..	9	3	...
Mercy Hospital [1-3]	Baltimore	E. R. Dana	Roent.	12,893	.....	...	40	1	1	1	250
Sinai Hospital [1-3-205]	Baltimore	J. Salik	Rad.	18,239	1,519	1	40	1	3	2	85
Union Memorial Hospital [1-3]	Baltimore	W. B. Firor	D.R.	12,417	.....	...	...	1	1	1	65
University Hospital [1-3]	Baltimore	W. L. Kilby	Rad.	31,279	3,235	...	131	1	3	3	50
Washington County Hospital [1-3-121]	Hagerstown, Md.	S. H. Macht	D.R.	10,036	1,496	433	17	2	2	1	250
Beth Israel Hospital [1-3]	Boston	S. A. Robins F. *Fleischner*	*Roent.*	20,228	2,800	100	15	4	5	2	41.82
Boston City Hospital [1-3]	Boston	M. Ritvo	Rad.	101,289	6,827	442	210	..	7	3	132
Children's Medical Center [1-3]	Boston	E. B. D. Neuhauser	Roent.	23,316	.....	...	...	..	2	2	50
Faulkner Hospital [1-3]	Boston	L. E. Hawes	Roent.	*8,423*	*1,100*	*33*	...	1	3	2	220
Lahey Clinic [1-3]	Boston	H. F. Hare M. I. Smedal	Roent.	65,436	12,765	89	3	2	8	3	150
Massachusetts General Hospital [1-3]	Boston	L. L. Robbins	Rad.	30,666	10,285	5,531	64	2	6	3	100
Massachusetts Memorial Hospitals [1-3]	Boston	G. Levene	Roent.	10,798	2,578	187	4	..	4	3	50
New England Center Hospital [1-3]	Boston	A. Ettinger	Rad.	28,372	857	...	3	1	4	3	100
New England Deaconess Hospital [1-3-131]	Boston	J. H. Marks	Roent.	18,783	3,729	195	63	1	3	3	135
Peter Bent Brigham Hospital [1-3]	Boston	M. C. Sosman	Rad.	24,640	.....	...	...	2	9	3	41.75
St. Elizabeth's Hospital [1-3]	*Brighton, Mass.*	W. A. Carey	*D.R.*	*16,926*	*942*	...	20	..	1	1	125
Cambridge City Hospital [1-3]	Cambridge, Mass.	F. A. Herzan	Rad.	14,708	562	187	4	1	2	1	125
Mount Auburn Hospital [1-3]	Cambridge, Mass.	R. Schatzki	Roent.	14,106	2,399	231	10	..	1	1	115
Lawrence General Hospital [1-3]	Lawrence, Mass.	G. V. West	Roent.	13,581	.....	...	...	1	3	1	125
Lynn Hospital [1-3]	Lynn, Mass.	H. A. Osgood	Roent.	19,540	3,267	...	14	..	1	3	150
Newton-Wellesley Hospital [1-3]	Newton Lower Falls, Mass.	C. Liabman	Roent.	13,619	89	1,035	18	1	2	2	170
Salem Hospital [1-3-135-137]	Salem, Mass.	S. A. Wilson	Roent.	12,364	1,606	*400*	*6*	*1*	3	*3*	125
Memorial Hospital [1-3]	Worcester, Mass.	W. J. Elliott	Roent.	13,471	2,734	72	13	1	1	1	200
St. Joseph Mercy Hospital [1-3]	Ann Arbor, Mich.	S. W. Donaldson	Rad.	20,873	1,661	301	37	1	3	3	200
University Hospital [1-3]	Ann Arbor, Mich.	F. J. Hodges	Rad.	46,786	11,148	607	235	4	12	3	134.16
Leila Y. Post Montgomery Hospital [1-3]	Battle Creek, Mich.	S. P. Barden	Rad.	11,147	1,590	178	43	1	1	3	275
Children's Hospital [1-3]	Detroit	W. A. Evans	D.R.	8,684	.....	2	...	1	1	1	...
Grace Hospital [1-3]	Detroit	H. A. Jarre	Rad.	31,950	5,456	1,886	30	2	6	3	225
Harper Hospital [1-3]	Detroit	L. Reynolds	Rad.	25,438	19,478	543	336	3	9	3	225
Henry Ford Hospital [1-3]	Detroit	H. P. Doub	Rad.	56,887	5,911	1,872	47	3	9	3	225
Jennings Memorial Hospital [1]	Detroit	F. C. Jewell	D.R.	10,409	820	...	12	1	2	2	...
Mount Carmel Mercy Hospital [1]	Detroit	J. M. Grace	Roent.	43,651	4,016	179	...	1	3	2	225
Providence Hospital [1-3-147-148]	Detroit	W. A. *Irwin*	Rad.	21,992	*3,461*	*149*	139	*1*	3	3	250
Wayne University Affiliated Hospitals											
Veterans Admin. Hospital [1-3]	Dearborn, Mich.	E. E. Levine	Roent.	25,409	2,576	322	2,898	2	6	2	...
City of Detroit Receiving Hospital [1-3]	Detroit	J. *Lofstrom*	Rad.	46,383	.....	...	...	3	9	2	251
Detroit Memorial Hospital	Detroit	....	.....	......	.....	...	...	..	..	..	...
Herman Kiefer Hospital [1-3]	Detroit	C. C. Birkelo	D.R.	101,017	.....	53	...	1	1	1	436
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	J. Zbikowski	Rad.	19,355	2,566	115	22	..	2	1	278.33
Hurley Hospital [1]	Flint, Mich.	D. R. Limbach	Rad.	45,122	2,806	1,403	51	1	3	3	300
Blodgett Memorial Hospital [1-3-146]	Grand Rapids, Mich.	H. C. Jones	Roent.	14,747	3,663	24	37	1	2	2	200
Butterworth Hospital [1-3]	Grand Rapids, Mich.	E. F. Wahby	Rad.	18,918	2,421	...	55	1	3	2	225
Hackley Hospital [1-3-149]	Muskegon, Mich.	L. E. Holly	Rad.	15,773	.....	...	62	1	4	3	150
Beyer Memorial Hospital	Ypsilanti, Mich.	....	D.R.	13,133	1,010	27	5	..	1	1	220
Northwestern Hospital [1-3]	Minneapolis	C. O. Hansen	Rad.	11,690	9,650	549	43	..	1	3	200
Swedish Hospital [1-3]	Minneapolis	G. T. Nordin L. G. *Idstrom*	*Rad.*	*19,943*	*3,477*	*695*	*54*	*1*	3	3	200
University of Minnesota Hospitals [1-3]	Minneapolis	L. *Rigler*	Rad.	41,717	8,031	1,113	189	..	8	3	150

Numerical and other references will be found on pages 373 and 374.

25. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Mayo Foundation [1-3]	Rochester, Minn.	H. M. Weber	Rad.	271,545	26,595	960	2,602	9	28	3	150
Charles T. Miller Hospital [1-3-150]	St. Paul, Minn.	H. D. Peterson	Rad.	13,027	8,791	...	8,791	1	1	3	150
St. Joseph's Hospital [1-3]	St. Paul, Minn.	J. P. Medelman	Roent.	12,400	2,155	15	18	1	1	1	150
Kansas City General Hospital No. 1	Kansas City, Mo.	E. H. Stratemeir	Rad.	22,212	1,324	603	51	1	3	3	75
Kansas City General Hospital No. 2 [1-3]	Kansas City, Mo.	I. H. Lockwood	D.R.	12,041	311	...	3	1	2	3	75
Menorah Hospital Medical Center [1-3]	Kansas City, Mo.	D. S. Dann	Rad.	16,478	2,104	525	47	1	1	1	151.50
Research Hospital [1-3]	Kansas City, Mo.	I. H. Lockwood	Rad.	108,358	8,119	2,700	284	1	3	3	175
St. Joseph Hospital [3]	Kansas City, Mo.	C. E. Virden	Rad.	14,202	2,801	...	83	1	4	3	200
St. Luke's Hospital [1-3]	Kansas City, Mo.	L. A. Scarpellino	Roent.	10,619	1,843	55	17	1	2	3	175
Barnard Free Skin and Cancer Hospital [1-3]	St. Louis	E. C. Ernst	Ther. Rad.	1,684	6,344	982	114	1	1	1	125
Barnes Hospital [1-3]	St. Louis	H. Wilson	Rad.	53,202	16,912	377	220	..	10	3	100
De Paul Hospital [1-3]	St. Louis	E. C. Ernst	Rad.	11,966	1,205	278	48	1	2	2	185
Homer G. Phillips Hospital [1-3]	St. Louis	W E. Allen	Rad.	23,041	1,689	31	158	2	6	3	190
Jewish Hospital [1-3]	St. Louis	H. R. Senturia	Rad.	11,638	4,993	477	49	1	2	2	100
St. Louis City Hospital [1-3]	St. Louis	D. Weir	Rad.	44,918	2,356	...	116	3	7	3	137.75
St. Luke's Hospital [1-3]	St. Louis	O. C. Zink	Roent.	10,785	1,177	23	141	..	1	3	...
St. Mary's Group of Hospitals [1-3]	St. Louis	L. Sante	Rad.	18,768	3,274	227	56	1	3	3	65
Creighton Memorial-St. Joseph's Hospital [1]	Omaha	J. F. Kelly	Rad.	37,552	2,661	...	...	1	3	3	150
Nebraska Methodist Hospital [1-3]	Omaha	H. B. Hunt	Rad.	10,110	5,459	1,012	111	..	2	3	300
St. Catherine's Hospital [1-3]	Omaha	J. F. Kelly	Roent.	4,407	353	64	6	1	1	3	100
University of Nebraska Hospital [1-3]	Omaha	H. B. Hunt	Rad.	10,955	3,250	558	90	2	6	3	175
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	W. C. MacCarty, Jr.	Rad.	23,051	2,421	574	147	1	3	3	170
Atlantic City Hospital [1]	Atlantic City, N. J.	R. A. Bradley	Roent.	9,243	3,802	450	44	1	1	1	150
Cooper Hospital [1-3]	Camden, N. J.	P. D. Gilbert	Rad.	25,096	5,766	538	65	1	1	2	200
Medical Center-Jersey City Hospital [1-3]	Jersey City, N. J.	H. J. Perlberg	Rad.	36,462	10,223	493	197	4	6	2	120
Burlington County Hospital [1-3]	Mt. Holly, N. J.	H. P. Kane	Roent.	8,453	1,141	246	17	1	1	1	100
Hospital of St. Barnabas and for Women and Children [1-3]	Newark, N. J.	P. J. Gianquinto	Roent.	7,815	2,131	249	18	2	4	2	100
Newark Beth Israel Hospital [1-3]	Newark, N. J.	N. J. Furst	Rad.	9,414	5,022	129	63	1	1	3	75
City Hospital [1-3]	Newark, N. J.	P. J. Santora	Roent.	16,659	2,501	104	28	2	2	1	115
Orange Memorial Hospital [1-3]	Orange, N. J.	W. H. Seward	Roent.	16,303	4,575	1,761	24	1	1	1	120
Mercer Hospital [1-3]	Trenton, N. J.	M. P. Mains	Roent.	10,343	1,220	...	117	..	1	3	150
Albany Hospital [1-3]	Albany, N. Y.	J. F. Roach	Rad.	23,730	.....	...	110	2	3	2	135
Binghamton City Hospital [1-3]	Binghamton, N. Y.	E. G. St. John	Rad.	13,061	2,563	15	19	1	1	1	150
Brooklyn Hospital [1-3]	Brooklyn	J. H. Wentworth	Rad.	18,280	.....	...	90	1	3	3	100
Cumberland Hospital [1-3-182]	Brooklyn	E. Mendelson	D.R.	19,161	.....	...	...	1	3	2	99
Jewish Hospital [1-3]	Brooklyn	M. Wasch	Rad.	23,108	2,524	229	2,753	2	4	3	75
John E. Jennings Hospital [1-3]	Brooklyn	A. B. Friedmann	Ther. Rad.	6,035	11,892	275	90	4	4	3	150
Kings County Hospital [1-3]	Brooklyn	L. Harrington	Rad.	122,925	10,411	1,667	93	2	6	3	98
Long Island College Hospital [1-3]	Brooklyn	A. L. L. Bell	Rad.	21,338	4,270	326	67	1	3	3	75
Maimonides Hospital [1-3]	Brooklyn	M. Slobodkin	D.R.	20,810	.....	...	11	2	3	2	75
Methodist Hospital [1-3]	Brooklyn	R. H. Smith	Roent.	11,445	1,524	44	28	1	2	2	75
Buffalo General Hospital [1-3]	Buffalo	G. J. Culver	Roent.	24,422	6,404	629	110	..	4	3	125
Deaconess Hospital [1-3]	Buffalo	R. E. Seibel	Roent.	12,913	3,044	35	...	1	1	2	175
Edward J. Meyer Memorial Hospital [1]	Buffalo	E. G. Eschner	Roent.	32,834	1,652	559	32	1	3	3	179
Roswell Park Memorial Institute [1-3]	Buffalo	W. T. Murphy	Ther. Rad.	1,786	40,520	3,141	405	..	3	3	275
Clifton Springs Sanitarium [1-3]	Clifton Spgs., N. Y.	G. Brown	Roent.	5,963	852	172	2	1	1	1	100
Meadowbrook Hospital [1-3]	Hempstead, N. Y.	H. R. Zatzkin	Rad.	19,295	5,276	8	27	1	3	3	225
Queens General Hospital [1-3]	Jamaica, N. Y.	A. V. Shapiro L. B. Goldman	Rad.	33,585	5,552	1,605	112	1	3	3	98.33
Charles S. Wilson Memorial Hospital [1-3]	Johnson City, N. Y.	B. D. Jay	Rad.	17,816	1,785	363	70	1	2	2	175
Mount Vernon Hospital [3]	Mount Vernon, N. Y.	J. J. Pileggi	Roent.	11,397	717	4	2	1	1	2	125
New Rochelle Hospital [3]	New Rochelle, N. Y.	J. F. Miller	Rad.	15,244	1,862	162	14	1	3	2	125
Bellevue Hospital Center Division III—New York University College of Medicine [1-3]	New York City	M. Poppel	Rad.	144,422	11,467	878	975	6	12	3	98
Beth David Hospital [1-3]	New York City	M. Birnkrant	D.R.	8,243	.....	...	...	1	1	1	125
Beth Israel Hospital [1-3]	New York City	A. J. Bendick	Roent.	14,025	2,407	250	8	2	3	3	75
Bronx Hospital [1-3]	New York City	A. J. Bernstein J. R. Freid	Roent.	15,726	2,678	468	11	1	2	2	100
Doctors Hospital [1-3]	New York City	A. J. Tillinghast	Roent.	7,545	1,101	...	6	1	1	1	200
Flower and Fifth Avenue Hospital [1-3]	New York City	F. J. Borrelli	Rad.	14,011	2,143	218	56	1	3	3	...
Francis Delafield Hospital [1-3]	New York City	R. Golden	Rad.	7,448	4,650	36	30	2	6	3	98
French Hospital [1-3]	New York City	E. M. Claiborne	Roent.	11,844	1,256	...	12	1	2	2	100
Goldwater Memorial Hospital [1-3]	New York City	H. K. Taylor	D.R.	12,922	118	19	...	2	3	1	98
Harlem Hospital [1-3]	New York City	M. Slater I. Arons	Rad.	64,536	6,652	402	22	1	3	2	98.32
Hospital for Joint Diseases [1-3]	New York City	M. M. Pomeranz	Rad.	25,186	773	242	21	1	3	3	70
Lenox Hill Hospital [1-3]	New York City	F. H. Ghiselin	Roent.	22,549	3,430	137	14	1	3	3	180
Lincoln Hospital [1-3]	New York City	E. Kraft	Roent.	31,792	448	150	4	1	2	2	99
Memorial Center for Cancer and Allied Diseases [1-3]	New York City	R. S. Sherman J. J. Nickson	Rad.	88,161	39,113	...	548	4	17	2	98
Metropolitan Hospital [1-3]	New York City	F. J. Borrelli	D.R.	36,985	.....	...	...	1	2	2	98
Montefiore Hospital [1-3]	New York City	J. R. Freid J. M. Schwartzman	Rad.	35,472	6,684	2,822	42	4	7	3	60
Morrisania City Hospital [1-3]	New York City	H. Firestein	Rad.	23,188	2,754	170	23	1	2	2	98
Mount Sinai Hospital [1-3]	New York City	B. S. Wolf W. Harris	Rad.	41,227	7,749	...	93	2	6	3	...
New York City Hospital [1-3]	New York City	M. M. Pomeranz	D. R.	18,460	.....	...	...	1	2	2	150
New York Hospital [1-3]	New York City	J. Evans	Rad.	78,661	9,675	1,123	64	3	9	3	25
New York Polyclinic ''	New York City	W. H. Shehadi	Roent.	10,105	1,138	808	25	1	2	2	100
New York University-University Hospital [1-3]	New York City	(See also Bellevue Hospital Center, Division III) M Poppel	Rad.	20,000	2,753	370	229	1	4	3	85
Presbyterian Hospital [1-3]	New York City	R. Golden	Rad.	102,052	18,669	...	165	4	12	3	208.33
Roosevelt Hospital [1-3]	New York City	A. A. Dunn, Jr.	Rad.	39,324	3,658	...	4,491	1	3	3	116
St. Luke's Hospital [1-3]	New York City	H. Hempel	Rad.	36,129	4,338	...	19	1	3	3	60
St. Vincent's Hospital [1-3]	New York City	F. F. Ruzicka, Jr.	Rad.	31,103	257	112	25	2	4	3	50
	New York City	J. Moseley	Roent.	9,079	259	53	12	1	2	1	98
	Port Chester, N. Y.	T. West	Roent.	12,148	2,717	30	3	1	1	1	200
	Rochester, N. Y.	G. G. Baron	Roent.	12,827	3,041	...	14	1	2	3	75
l [1-3]	Rochester, N. Y.	E. F. Merrill	Rad.	21,939	5,582	1,171	52	1	3	3	100
	Rochester, N. Y.	A. V. Winchell	Roent.	16,555	.....	...	62	2	2	2	200
Municipal Hospitals [1-3-212]	Rochester, N. Y.	G. H. Ramsey	Rad.	27,550	3,805	689	76	4	10	3	41.66
Hospital [1]	Schenectady, N. Y.	K. L. Mitton	Roent.	13,941	891	...	15	1	1	1	...
Sea View Hospital [1-3]	Staten Island, N. Y.	S. E. Kamen	D.R.	21,253	.....	...	...	1	1	1	150

Numerical and other references will be found on pages 373 and 374.

25. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Crouse-Irving Hospital	Syracuse, N. Y.	C. F. Potter	Roent.	7,785	750	75	...	1	1	2	150
State University of New York Medical Center[1-3-219]	Syracuse, N. Y.	C. Hale	Rad.	18,631	3,412	38,058	45	1	3	3	191.66
Grasslands Hospital[1-3]	Valhalla, N. Y.	A. G. Debbie	Roent.	16,859	2,164	1,368	27	1	3	3	125
St. John's Riverside Hospital	Yonkers, N. Y.	J. E. Miller	Roent.	7,482	1,202	314	15	..	1	2	150
Charlotte Memorial Hospital	Charlotte, N. C.	W. C. A. Sternbergh	Roent.	12,234	919	53	24	1	2	1	150
Duke Hospital[1-3]	Durham, N. C.	R. J. Reeves	Rad.	10,168	9,611	610	231	4	11	3	41.33
Watts Hospital[1]	Durham, N. C.	S. P. Perry	Rad.	19,861	2,954	1,032	22	1	2	3	150
North Carolina Baptist Hospital[1-3]	Winston-Salem, N. C.	J. R. Andrews	Rad.	16,533	2,112	65	44	1	4	3	41.66
Bismarck Hospital	Bismarck, N. D.	H. M. Berg	Rad.	26,467	2,398	738	57	1	2	3	300
City Hospital[1-3]	Akron, Ohio	F. T. Moore	Rad.	38,812	.....	...	...	3	5	3	250
Peoples Hospital[1-3]	Akron, Ohio	C. J. Miller	Rad.	6,617	5,869	256	32	..	1	3	250
Aultman Hospital[1-3]	Canton, Ohio	S. Larson	Rad.	22,752	2,246	900	54	1	2	1	225
Mercy Hospital[1-3]	Canton, Ohio	T. J. Dodd	D.R.	19,648	3,482	43	47	1	3	3	200
Cincinnati General Hospital[1-3]	Cincinnati	....	Rad.	40,149	5,426	338	66	3	8	3	...
Good Samaritan Hospital[1-3]	Cincinnati	J. E. McCarthy	Rad.	23,119	5,157	153	58	1	2	2	175
Jewish Hospital[1-3]	Cincinnati	L. Rosenberg	Rad.	18,060	2,275	325	88	1	2	3	145
City Hospital	Cleveland	....	Rad.	30,697	4,084	1,458	54	..	..	3	90
Cleveland Clinic Hospital[1-3]	Cleveland	C. R. Hughes	Rad.	104,140	6,760	780	56	4	12	3	175
Lutheran Hospital[1-3]	Cleveland	J. A. Groh	Roent.	11,387	3,104	56	12	1	2	3	162.50
Mount Sinai Hospital[1-3]	Cleveland	H. A. Mahrer	Roent.	17,991	4,457	...	14	1	3	3	...
St. Luke's Hospital[1-3]	Cleveland	D. D. Brannan	Rad.	30,893	3,734	1,242	11	1	3	3	120
St. Vincent Charity Hospital[1-3]	Cleveland	E. J. O'Malley	Rad.	13,626	1,970	...	16	1	2	3	...
University Hospitals[1-3]	Cleveland	H. L. Friedell	Rad.	45,388	5,749	536	42	2	6	3	40
University Hospitals University Hospital[1-3-238-240]	Columbus, Ohio	J. L. Morton	Rad.	34,136	8,130	420	173	4	11	3	150
Miami Valley Hospital[1-3]	Dayton, Ohio	G. A. Nicoll	Rad.	17,832	2,838	...	39	1	3	3	210
St. Elizabeth Hospital[1-3]	Dayton, Ohio	H. Snow	Rad.	15,109	1,091	...	...	..	1	3	225
Huron Road Hospital[1-3]	East Cleveland, Ohio	W. D. Heinrich	Roent.	21,538	2,800	476	28	1	2	2	210
St. Vincent's Hospital[1-3]	Toledo, Ohio	C. E. Hufford	D.R.	35,142	443	...	9	1	1	1	225
St. Elizabeth's Hospital[1-3]	Youngstown, Ohio	S. Tamarkin	Roent.	17,466	2,035	92	22	1	1	1	200
Youngstown Hospital	Youngstown, Ohio	E. C. Baker	Rad.	19,477	6,895	507	26	1	3	3	125
University Hospitals[1-3-217]	Oklahoma City	P. E. Russo	Rad.	26,520	.....	...	85	2	6	3	50
Wesley Hospital[1-216]	Oklahoma City	E. H. Kalmon	D.R.	8,997	1,852	10	40	1	1	1	150
St. John's Hospital[1]	Tulsa, Okla	L. M. Pascucci	Rad.	16,143	7,551	...	120	1	3	2	150
St. Vincent's Hospital[1]	Portland, Ore.	S. E. Rees	Roent.	11,677	1,289	...	35	1	3	3	165
University of Oregon Medical School Hospitals and Clinics[1]	Portland, Ore.	C. Dotter	Rad.	36,252	4,341	...	21	1	3	3	85
Abington Memorial Hospital[1-3]	Abington, Pa.	J. D. Zulick	Roent.	18,504	2,922	154	51	..	1	3	100
Bryn Mawr Hospital[1-3]	Bryn Mawr, Pa.	R. S. Bromer	Rad.	18,719	.....	...	201	1	3	3	100
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	C. L. Hinkel	Rad.	15,805	1,454	1,500	49	..	3	3	100
St. Vincent's Hospital[1-3]	Erie, Pa.	R. D. Bacon	Rad.	12,285	1,034	30	16	1	3	3	100
Albert Einstein Medical Center											
Northern Division[1-3]	Philadelphia	J. Gershon-Cohen	Rad.	20,031	8,240	982	39	3	3	3	100
Southern Division[1-3]	Philadelphia	H. J. Isard	Roent.	15,531	2,148	...	75	2	2	3	75
American Oncologic Hospital[1-3]	Philadelphia	S. G. Castigliano	Ther. Rad.	......	4,590	960	119	2	2	3	250
Chestnut Hill Hospital[1-3]	Philadelphia	R. P. Barden	Roent.	8,000	1,600	200	50	1	1	1	200
Episcopal Hospital[1]	Philadelphia	D. A. Sampson	Rad.	19,074	1,995	366	31	1	3	3	100
Frankford Hospital[1-3]	Philadelphia	M. T. Woodruff	D.R.	10,887	370	20	12	1	1	1	250
Germantown Dispensary and Hospital[1-3]	Philadelphia	B. R. Young	Rad.	23,636	3,032	900	55	1	3	3	150
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	A. Finkelstein	Rad.	21,904	.....	4,165	31	6	11	3	...
Hahnemann Medical College and Hospital[1-3]	Philadelphia	J. S. Lehman	Rad.	33,031	4,191	231	379	2	6	3	50
Hospital of the University of Pennsylvania[1-8]	Philadelphia	E. Pendergrass	Rad.	140,147	16,956	2,996	...	7	24	3	...
Hospital of the Woman's Medical College of Pennsylvania[1-3]	Philadelphia	J. Vastine	Roent.	9,006	1,517	13	43	1	1	3	200
Jeanes Hospital[1-3]	Philadelphia	E. P. Pendergrass	Rad.	4,165	1,398	127	18	..	1	1	300
Jefferson Medic	Philadelphia	P. C. Swenson	Rad.	51,384	4,758	481	748	2	11	3	150
Mercy-Douglas .	Philadelphia	R. F. Minton	D.R.	3,425	.....	...	...	1	1	..	150
Nazareth Hospi	Philadelphia	J. S. Fetter	Roent.	13,391	1,143	399	24	1	1	2	200
Pennsylvania Hospital[1-3]	Philadelphia	P. A. Bishop	Rad.	15,502	1,993	288	97	..	2	3	20
Philadelphia General Hospital[1-3]	Philadelphia	B. Widmann	Rad.	42,224	9,168	387	205	3	9	3	112.34
Presbyterian Hospital[1-3]	Philadelphia	E. L. Lame	Rad.	10,319	.....	4,043	42	..	..	3	...
Temple University Hospital[1-3]	Philadelphia	W. E. Chamberlain	Rad.	36,454	6,896	173	32	6	15	3	50
Allegheny General Hospital[1-3]	Pittsburgh	T. B. Childs	Roent.	24,462	3,329	476	43	..	1	2	150
Mercy Hospital[1-3]	Pittsburgh	C. R. Perryman	Rad.	32,723	6,383	...	151	1	1	3	150
Montefiore Hospital[1-3]	Pittsburgh	M. F. Goldsmith	Roent.	12,689	3,002	240	...	2	2	3	100
Pittsburgh Medical Center[1-3-201]	Pittsburgh	G. W. Grier	Rad.	......	.....	...	..	..	..	3	...
St. Francis Hospital[1-3]	Pittsburgh	G. H. Alexander	Roent.	45,670	2,684	92	52	1	3	3	150
Western Pennsylvania Hospital[1-3]	Pittsburgh	D. H. Rice	Rad.	20,695	3,557	413	45	1	3	3	225
Reading Hospital[1-3]	Reading, Pa.	G. W. Chamberlin	Rad.	12,105	4,356	...	43	2	6	3	175
St. Joseph's Hospital[1-3]	Reading, Pa.	W. W. Werley N. Carabello	Roent.	8,635	.....	...	10	1	1	1	250
Robert Packer Hospital[1-3]	Sayre, Pa.	S. P. Perry	Rad.	26,807	3,580	310	20	1	3	3	100
Sharon General Hospital[1]	Sharon, Pa.	H. A. Steiner	Roent.	12,540	.....	...	68	1	3	1	...
Chester County Hospital	West Chester, Pa.	J. Gershon-Cohen	Roent.	6,658	1,599	638	4	1	1	1	...
Rhode Island Hospital[1-3]	Providence, R. I.	L. A. Martineau	Roent.	26,672	2,116	398	87	1	2	3	83.34
Roger Williams General Hospital[1-3]	Providence, R. I.	R. R. Hunt	Roent.	9,639	2,043	1,024	57	..	1	2	200
Roper Hospital[1-3]	Charleston, S. C.	H. S. Pettit	Rad.	23,290	4,931	98	42	1	2	3	83
Columbia Hospital[1-3]	Columbia, S. C.	G. W. Smith	Roent.	38,764	3,602	109	38	1	1	1	150
Spartanburg General Hospital[1]	Spartanburg, S. C.	H. E. Plenge	Rad.	11,020	2,398	455	52	..	1	2	200
Baptist Memorial Hospital[1-3]	Memphis, Tenn.	J. E. Whiteleather	Roent.	16,590	.....	...	92	3	9	3	...
City of Memphis Hospitals[1-3]	Memphis, Tenn.	D. W. Carroll	Rad.	33,472	2,766	...	69	2	6	3	35
Methodist Hospital	Memphis, Tenn.	J. C. King	Roent.	20,967	5,769	1,004	38	1	5	3	100
George W. Hubbard Hospital of Meharry Medical College[1-3]	Nashville, Tenn.	G. J. Tarleton	Rad.	7,021	1,103	246	25	2	3	3	125
Vanderbilt University Hospital[1-3-207]	Nashville, Tenn.	C. C. McClure	Rad.	20,654	3,252	131	137	2	6	3	50
Baylor University Hospital[1-3]	Dallas, Texas	J. E. Miller	Rad.	23,482	6,756	190	150	1	3	3	75
Methodist Hospital[1-3]	Dallas, Texas	R. H. Millwee	D.R.	5,290	491	130	35	1	1	1	125
Parkland Hospital[1-3]	Dallas, Texas	R. Clayton	Rad.	25,250	1,617	456	88	2	4	3	50
St. Paul's Hospital[1-3]	Dallas, Texas	G. D. Carlson	Roent.	9,643	954	...	17	1	1	1	125
University of Texas Medical Branch Hosps.[1-3-270]	Galveston, Texas	J. C. Rude	Rad.	49,313	.....	...	80	7	13	3	...
Methodist Hospital[1-3]	Houston, Texas	C. H. Burge	Roent.	8,831	.....	...	...	1	1	1	100
Hermann Hospital[1-3-276]	Houston, Texas	L. M. Vaughan	Rad.	31,230	3,376	193	46	1	3	3	100
St. Joseph's Hospital[3]	Houston, Texas	P. E. Wigby	Rad.	24,118	3,340	70	32	1	1	3	150
M. D. Anderson Hospital for Cancer Research[1-3-273]	Houston, Texas	G. Fletcher	Rad.	8,360	12,441	1,864	348	3	9	3	...
Baptist Memorial Hospital[1-3]	San Antonio, Texas	E. F. Lyon, Jr.	D.R.	9,881	.....	...	53	1	2	2	150

Numerical and other references will be found on pages 373 and 374.

25. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Santa Rosa Hospital[3]	San Antonio, Texas	F. R. O'Neill A. Thaggard	D.R.	26,568	1,697	...	25	1	2	1	150
Scott and White Memorial Hospital[1-3]	Temple, Texas	O. A. Stevenson	Rad.	50,555	5,057	1,510	149	2	6	3	250
Wichita Falls Clinic-Hospital	Wichita Falls, Texas	....	Roent.	16,328	2,495	1,383	11	1	1	1	...
University of Utah Affiliated Hospitals		....	Rad.	.....	.....	...	...	..	..	3	...
Dr. W. H. Groves Latter-Day Saints Hospital[1-3]	Salt Lake City	E. R. Crowder	.....	9,292	.....	...	...	1	3	..	160
Holy Cross Hospital[1-3]	Salt Lake City	R. R. Meyer	.....	6,635	1,050	21	6	1	3	..	175
St. Mark's Hospital[1-3]	Salt Lake City	G. L. Wright	.....	3,805	519	36	10	2	2	..	175
Salt Lake County General Hospital[1-3]	Salt Lake City	W. R. Christensen	.....	13,105	491	5,223	...	1	4	..	...
Veterans Admin. Hospital	Salt Lake City	....	.....	11,205	1,057	...	...	..	..	..	...
Bishop DeGoesbriand Hospital[1-3-287]	Burlington, Vt.	F. W. VanBuskirk	Roent.	10,469	1,385	25	...	1	1	1	50
Mary Fletcher Hospital[1-3-286]	Burlington, Vt.	A. B. Soule, Jr.	Rad.	13,296	3,424	58	90	1	4	3	166.67
University of Virginia Hospital[1-3]	Charlottesville, Va.	V. W. Archer	Roent.	35,767	6,515	...	105	2	2	3	50
De Paul Hospital[1-3]	Norfolk, Va.	J. Foster	Roent.	13,556	900	220	24	1	3	1	225
Norfolk General Hospital[1-3]	Norfolk, Va.	P. B. Parson J. L. Frank	Rad.	16,068	4,750	533	482	2	4	3	...
Medical College of Virginia—Hospital Division[1-3]	Richmond, Va.	F. B. Mandeville	Rad.	36,103	3,382	714	153	1	5	3	...
Swedish Hospital[1-3]	Seattle, Wash.	S. T. Cantril	Ther. Rad.	......	7,552	966	157	..	1	3	100
Virginia Mason Hospital[1-3-203]	Seattle, Wash.	T. Carlile	Rad.	21,237	2,391	1,275	32	1	2	3	100
Sacred Heart Hospital[1-3]	Spokane, Wash.	M. T. Harris	Rad.	9,725	917	...	53	2	2	2	150
Methodist Hospital[1-3]	Madison, Wis.	W. L. Waskow	Roent.	11,050	1,785	115	75	..	1	2	...
University Hospitals[1-3]	Madison, Wis.	E. A. Pohle	Rad.	40,527	9,160	414	144	2	6	3	50
St. Joseph's Hospital[1]	Marshfield, Wis.	J. W. Wickham	Rad.	3,728	315	...	...	1	3	3	300
Columbia Hospital[1-3]	Milwaukee	S. A. Morton	Rad.	41,815	.....	...	47	..	1	3	...
Evangelical Deaconess Hospital[1-3]	Milwaukee	A. Melamed	Roent.	4,662	2,701	235	16	1	1	1	125
Milwaukee Hospital[1-3-290]	Milwaukee	H. W. Hefke	Rad.	19,908	8,430	976	126	1	2	3	150
Milwaukee County Hospital[1-3]	Milwaukee	J. L. Marks	Rad.	44,722	5,286	306	18	2	4	1	208.92
St. Joseph's Hospital[1-3]	Milwaukee	G. W. Sengpiel	Roent.	44,196	4,496	...	37	1	1	3	200
Gorgas Hospital[3]	Ancon, C. Z.	H. H. Virden	D.R.	19,975	1,141	2,420	12	1	2	2	282.55
Queen's Hospital[1-3]	Honolulu, T. H.	L. L. Buzaid	Roent.	8,521	1,305	144	4	1	3	3	135
San Juan City Hospital[1-3]	San Juan, P. R.	J. L. Becerra	Roent.	8,533	1,775	125	...	..	1	2	150

26. SURGERY

The following services have been approved for four years of training by the Council, the American Board of Surgery and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery. (See also additional lists of approved services, pp. 364-369.)

Hospitals, 239; Assistant Residencies and Residencies, 2,759

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
UNITED STATES ARMY									
Letterman Army Hospital[66]	San Francisco	W. A. Todd, Jr.	1,365	6,140	23	21	3	9	...
Fitzsimons Army Hospital[1-66]	Denver, Colo.	J. H. Forsee	762	5,777	38	38	2	8	...
Army Medical Center[1-66-67]	Washington, D. C.	S. F. Seeley	858	4,211	..	..	3	10	...
Brooke Army Medical Center[66-280]	San Antonio, Texas	W. F. Bowers	3,939	7,341	73	68	3	9	...
UNITED STATES NAVY									
U. S. Naval Hospital[1]	land, Calif.	R. S. Silvis	1,901	1,184	17	17	3	..	...
	San Diego	L. G. Bell	4,326	20,650	59	52	..	8	...
	thesda, Md.	R. B. Brown	3,284	15,919	77	56	..	8	...
	lsea, Mass.	L. L. Haynes	2,793	877	6	6	..	4	...
	bans, N. Y.	R. N. Grant	1,650	4,271	5	3	..	7	...
	Philadelphia	R. A. Cooper	2,872	18,996	61	28	..	9	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
Freedmen's Hospital[1-3]	Washington, D. C.	J. R. Laurey	1,044	11,301	94	35	1	11	...
UNITED STATES PUBLIC HEALTH SERVICE									
U. S. Public Health Service Hospital	San Francisco	M. B. Noyes	3,075	11,886	34	21	1	6	...
VETERANS ADMINISTRATION									
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	J. A. Weinberg	1,744	892	28	25	11	11	...
Veterans Admin. Hospital[1-3]	Los Angeles	J. M. Beal	2,815	3,683	176	139	9	21	...
Veterans Admin. Hospital[1]	San Francisco	L. G. Brizzolara	1,679	2,313	58	43	4	11	...
Veterans Admin. Hospital[1-3]	Denver	P. M. Ireland	1,880	.....	76	67	5	13	...
Veterans Admin. Hospital	Conn.	A. Hurwitz	1,710	5,624	30	21	4	8	...
Veterans Admin. Hospital	D. C.	J. G. Lee	1,096	1,363	55	49	3	7	...
Veterans Admin. Hospital[1]	Hines, Ill.	C. B. Puestow	5,156	1,327	159	97	27	52	...
Veterans Admin. Hospital[1]	Indianapolis	(See Indiana University Medical Center Hospitals)							...
Veterans Admin. Hospital[1]	Des Moines, Iowa	L. T. Palumbo	3,512	516	43	32	4	14	
Veterans Admin. Hospital	Iowa City, Iowa	E. S. Brintnall	1,579	.....	39	33	5	15	...
Veterans Admin. Hospital[1-3]	Wadsworth, Kan.	W. I. Hinkle	309	310	45	35	3	8	...
Veterans Admin. Hospital[1-3]	Louisville, Ky.	J. E. Hamilton	1,254	925	67	43	6	16	...
Veterans Admin. Hospital[1]	New Orleans, La.	L. K. Richardson	1,598	2,137	59	47	4	9	...
Veterans Admin. Hospital[1-3]	Fort Howard, Md.	J. M. Miller	1,161	298	47	32	2	6	...
Veterans Admin. Hospital[1-3]	Perry Point, Md.	R. T. Shackelford	1,120	348	24	17	2	6	...
Veterans Admin. Hospital[1-3-134]	Boston (Jamaica Plain), Mass.	H. Faxon	1,145	2,690	28	18	8	24	...
Veterans Admin. Hospital[132]	Boston (West Roxbury), Mass.	R. Warren	.....	.....	..	..	2	2	...
Veterans Admin. Hospital[1-3]	Dearborn, Mich.	C. G. Johnston	2,211	5,001	107	58	6	21	...
Veterans Admin. Hospital[1-3]	Jefferson Bks., Mo.	K. B. Coldwater	2,271	.....	59	36	4	16	...
Veterans Admin. Hospital[1-3]	Minneapolis	L. J. Hay	2,087	1,901	62	49	..	21	...
Veterans Admin. Hospital[3]	Omaha, Neb.	W. P. Kleitsch	1,410	1,566	42	30	2	8	...
Veterans Admin. Hospital[1-3]	Brooklyn	R. Friedlander	2,239	2,495	61	30	6	18	...
Veterans Admin. Hospital[1-3]	Buffalo, N. Y.	J. D. MacCallum	2,216	.....	91	56	..	14	...
Veterans Admin. Hospital[1-3]	New York City (Bronx), N. Y.	P. K. Sauer	2,281	5,914	73	41	4	16	...
Veterans Admin. Hospital[1-3]	Cleveland	C. L. Cogbill	2,352	1,636	71	41	10	20	...
Veterans Admin. Hospital[1-3]	Dayton, Ohio	W. G. Eckman	2,756	7,657	129	79	8	21	...

Numerical and other references will be found on pages 373 and 374.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
	Oklahoma City, Okla.	F. A. Quenzer	1,329	.....	48	35	2	8	...
	Portland, Ore.	R. A. Wise	1,570	1,617	12	12	4	16	...
	Aspinwall, Pa.	F. C. Jackson	860	.....	41	26	7	19	...
	Memphis, Tenn.	R. F. Bowers	3,215	1,211	78	59	7	21	...
	Nashville, Tenn.	R. I. Carlson	3,564	.....	65	..	6	18	...
	Dallas, Texas	W. H. Pickett	1,357	.....	49	32	4	12	...
	Houston, Texas	O. Creech, Jr.	1,335	981	27	21	6	16	...
	McKinney, Texas	J. P. North	1,720	.....	35	29	5	12	...
	Salt Lake City	J. A. Gubler	1,094	1,734	30	26	3	9	...
	hite River Jct., Vt.	W. B. Crandell	3,289	17,145	12	10	5	17	...
	Richmond, Va.	R. F. MacDonald	1,704	987	34	23	2	8	...
	Seattle, Wash.	J. T. Payne	1,824	640	60	49	4	10	...
	Milwaukee, Wis.	M. B. Smith	2,216	1,452	87	70	14	14	...
NONFEDERAL									
Jefferson-Hillman Hospital[1-3]	Birmingham, Ala.	C. Lyons	3,174	9,573	90	39	5	11	...
Lloyd Noland Hospital[1-3]	Fairfield, Ala.	R. A. Hamrick	1,069	12,422	10	3	2	5	225
University Hospital[1]	Little Rock, Ark.	J. H. Growdon	869	10,097	47	19	4	11	120
Los Angeles County Hospital[1]	Los Angeles	L. A. Brewer	4,184	11,399	312	142	..	12	190
Highland-Alameda County Hospital[1-3]	Oakland, Calif.	T. C. Lawson	1,774	9,094	123	42	6	14	...
Kaiser Foundation Hospital[1-3]	Oakland, Calif.	A. L. Baritell	2,140	33,805	78	42	5	10	...
Franklin Hospital[1-3]	San Francisco	C. G. Lyon	1,565	3,821	17	11	5	6	125
Mount Zion Hospital[1-3]	San Francisco	A. L. Brown	2,218	1,579	25	18	2	8	100
San Francisco Hospital									
Stanford University Service[1]	San Francisco	C. Matthewson	400	.....	56	9	3	5	175
University of California Service[1]	San Francisco	L. Goldman	436	.....	54	12	4	6	175
Stanford University Hospitals[1-3]	San Francisco	E. F. Holman	2,552	12,098	47	28	2	8	50
University of California Hospital[1-3]	San Francisco	H. G. Bell	1,414	7,411	26	14	..	9	87
Santa Barbara Cottage Hospital[1-3]	Santa Barbara, Calif.	H. V. Findlay	3,405	1,405	70	45	4	9	115
University of Colorado Medical Center			.....	.....	..	..	5	18	150
Colorado General Hospital[1-3-22]	Denver	H. Swan	925	8,427	47	38	..	..	...
Denver General Hospital[1-3-22]	Denver	D. H. Watkins	1,057	5,810	103	72	..	..	...
Hartford Hospital[1-3]	Hartford, Conn.	W. A. Standish	5,385	551	72	39	4	10	50
New Britain General Hospital[1-3]	New Britain, Conn.	B. B. Clark	4,234	.....	57	27	1	4	130
Grace-New Haven Community Hospital	(See listing of Grace-New Haven Community Hospital-General Service in following section)								
University Service[1-3]	New Haven, Conn.	G. E. Lindskog	4,823	10,183	71	47	4	16	50
Delaware Hospital[1-3]	Wilmington, Del.	C. L. Munson	5,004	6,723	106	66	1	5	180
Memorial Hospital[1-3]	Wilmington, Del.	J. C. Pierson	2,578	1,592	80	46	1	4	175
Central Dispensary and Emergency Hospital[1-3]	Washington, D. C.	J. H. Lyons	2,171	4,071	39	18	4	10	225
Gallinger Municipal Hospital[1-3]	Washington, D. C.	B. Blades R. Coffey	1,286	7,711	99	37	2	8	...
Garfield Memorial Hospital[1-3]	Washington, D. C.	J. O. Warfield, Jr.	1,264	1,148	37	25	2	6	160
Georgetown University Hospital[1-3]	Washington, D. C.	R. J. Coffey	3,691	2,218	98	53	6	15	...
George Washington University Hospital[1-3]	Washington, D. C.	B. Blades	6,101	4,756	46	27	5	11	130
Providence Hospital[1-3]	Washington, D. C.	L. B. Gaffney	3,339	7,206	72	2	1	4	200
Grady Memorial Hospital[1-3]	Atlanta, Ga.	I. A. Ferguson	3,465	30,557	224	92	12	29	20
Piedmont Hospital[1]	Atlanta, Ga.	F. W. McRae	2,884	.....	17	10	1	4	160
University Hospital	Augusta, Ga.	R. Major	3,328	.....	58	20	2	8	160
Cook County Hospital[1-3]	Chicago	K. A. Meyer	17,285	11,511	826	129	28	28	50
Mercy Hospital[1-3]	Chicago	H. A. Oberhelman	2,666	10,580	93	39	3	6	100
Michael Reese Hospital[1-3]	Chicago	N. N. Crohn	2,611	4,632	42	24	3	8	50
Mount Sinai Hospital[1-3]	Chicago	L. J. Aries	3,608	12,014	66	30	2	6	100
Northwestern University Medical Center									
Passavant Memorial Hospital[1-3]	Chicago	L. Davis	1,529	.....	21	16	..	5	...
Veterans Admin. Research Hospital	Chicago		.....	.....	..	..	..	..	...
Wesley Memorial Hospital[1-3]	Chicago	W. G. Maddock	3,081	4,253	89	56	2	8	50
Evanston Hospital	Evanston, Ill.	(See listing of Evanston Hospital in following section)							
Presbyterian Hospital[1-3]	Chicago	E. M. Miller	2.517	4,291	58	33	6	13	125
St. Luke's Hospital[1-3]	Chicago	G. deTakats	2,916	1,812	94	62	3	8	50
University of Chicago Clinics[1-3]	Chicago	L. R. Dragstedt	1,935	18,145	100	73	4	15	175
University of Illinois Research and Educational Hospitals[1-3]	Chicago	W. H. Cole	1,035	11,804	27	23	4	11	60
Indianapolis General Hospital[1]	Indianapolis	F. W. Taylor	1,208	5,716	47	20	2	8	150
Indiana University Medical Center Hospitals									
Indiana University Medical Center[1]	Indianapolis	H. B. Shumacker	3,277	6,779	159	135	8	20	150
Veterans Admin. Hospital[1]	Indianapolis	D. C. Strange	1,987	.....	85	72	18	18	...
Iowa Methodist Hospital[1-3]	Des Moines	T. Throckmorton	2,653	.....	72	28	2	6	100
University Hospital[1-3]	Iowa City	R. T. Tidrick	2,880	2,862	136	100	8	23	75
University of Kans	City, Kan.	P. Schafer	1,275	3,210	65	46	4	12	125
Louisville General	isville, Ky.	R. J. Noer	1,412	13,873	81	35	6	19	75
St. Joseph Infirmary[1-3]	Louisville, Ky.	C. Maguire	6,205	244	93	44	2	5	...
Charity Hospital of Louisiana									
Independent Unit[1-3]	New Orleans	L. J. O'Neil	1,455	15,481	59	26	2	7	100
Louisiana State University Unit[1-3]	New Orleans	J. D. Rives	2,198	22,146	130	52	3	12	40
Tulane University Unit[1-3]	New Orleans	E. W. A. Ochsner	2,089	19,617	121	71	3	12	40
Confederate Memorial Medical Center[1]	Shreveport, La.	P. D. Abramson	2,245	4,486	109	34	6	16	60
Maine General Hospital[1-3]	Portland, Me.	I. M. Webber	1,752	14,276	39	17	2	8	100
Baltimore City Hospitals[1-3]	Baltimore	O. C. Brantigan	1,781	15,346	132	40	6	14	75
Church Home and Hospital[1-3]	Baltimore	T. S. Cullen C. R. Edwards	3,621	1,562	43	21	3	6	200
Franklin Square Hospital[1-3]	Baltimore	H. E. Wilgis	1,235	.....	20	7	2	5	...
Johns Hopkins Hospital[1-3]	Baltimore	A. Blalock	3,932	21,715	139	77	..	9	...
Mercy Hospital[1-3]	Baltimore	W. D. Wise	2,680	21,910	78	34	2	6	250
Sinai Hospital[1-3]	Baltimore	H. M. Kern	3,007	2,502	67	32	3	7	85
Union Memorial Hospital[1-3]	Baltimore	G. G. Finney	5,035	9,124	113	43	4	9	65
University Hospital[1-3]	Baltimore	C. R. Edwards	2,558	9,645	131	50	4	14	50
Beth Israel Hospital[1-3]	Boston	J. Fine	2,758	4,007	53	37	4	13	41.82
Boston City Hospital[1-3]	Boston		10,150	55,212	544	134	25	68	112
I—Surgical Service	Boston	A. J. A. Campbell	.....	.....	..	..	..	..	...
III—Surgical Service	Boston	E. E. O'Neil	.....	.....	..	..	..	..	...
V—Surgical Service	Boston	C. C. Lund	.....	.....	..	..	..	..	...
Carney Hospital[1-3]	Boston	A. McK. Fraser W. E. Browne	1,994	4,140	70	29	4	7	125
Massachusetts General Hospital[1-3]	Boston	E. D. Churchill	7,555	11,694	206	110	8	25	100
Massachusetts Memorial Hospitals[1-3]	Boston	R. Smithwick	1,683	2,604	59	21	5	17	25
New England Center Hospital[1-3]	Boston	C. G. Child	642	.....	24	18	6	17	50
Peter Bent Brigham Hospital[1-3]	Boston	F. D. Moore	5,855	20,303	109	83	6	19	25
St. Vincent Hospital[1-3]	Worcester, Mass.	E. L. Richmond	4,450	.....	81	34	3	7	175
St. Joseph's Mercy Hospital[1-3]	Ann Arbor, Mich.	H. Beebe	1,318	.....	16	11	4	7	200

Numerical and other references will be found on pages 373 and 374.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [5]	Total Residencies Offered [5]	Beginning Stipend (Month)
University Hospital [1-3]	Ann Arbor, Mich.	F. A. Coller	2,256	9,101	115	77	16	31	121.16
City of Detroit Receiving Hospital [1-3]	Detroit	C. G. Johnston	4,569	18,600	280	124	7	20	251
Grace Hospital [1-3]	Detroit	R. P. Reynolds	8,920	.....	274	112	4	16	225
Harper Hospital [1-3]	Detroit	E. A. Osius	3,920	2,899	95	28	10	19	225
Henry Ford Hospital [1-3]	Detroit	L. S. Fallis	8,913	138,748	178	118	19	61	225
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	W. L. Sherman	2,827	5,007	231	87	1	2	278.22
Hurley Hospital [1]	Flint, Mich.	G. J. Curry	6,014	.....	98	44	2	8	200
Butterworth Hos		M. B. Tidey	4,254	2,151	89	33	2	7	225
Highland Park Ge		W. McClure	1,548	131	29	15	2	6	...
Minneapolis Gener		A. A. Zierold	952	6,057	83	57	6	16	160
University of Minnesota Hospitals [1-3]	Minneapolis	O. H. Wangensteen	1,908	6,234	117	88	9	27	160
Mayo Foundation and Clinic [1-3]	Rochester, Minn.	.....	.....	.....	..	..	..	..	...
Ancker Hospital [1-3]	St. Paul, Minn.	E. M. Jones	1,507	5,437	91	61	2	8	150
Charles T. Miller Hospital [1-3]	St. Paul, Minn.	E. M. Jones H. B. Zimmermann	1,148	1,315	9	7	1	1	150
Kansas City General Hospital No. 1	Kansas City, Mo.	R. R. Coffey	1,209	5,665	66	42	2	8	75
Barnes Hospital [1-3]	St. Louis	C. A. Moyer	6,311	23,469	184	109	15	25	50
Homer G. Phillips Hospital [1-3]	St. Louis	R. Elman	2,731	9,989	185	47	15	27	190
Jewish Hospital [1-3]	St. Louis	C. J. Helfetz	2,810	5,262	75	28	4	10	100
Missouri Pacific Hospital [3]	St. Louis	R. A. Weir	4,118	24,710	65	26	4	10	200
St. Louis City Hospital [1-3]	St. Louis	E. Bricker G. Sturkloff	3,309	14,438	268	106	5	17	137.75
St. Mary's Group of Hospitals [1-3]	St. Louis	R. C. Hanlon	2,814	7,158	108	54	4	12	65
University of Nebraska Hospital [1-3]	Omaha, Neb.	H. H. Davis	510	1,313	20	18	4	10	175
Newark Beth Israel Hospital [1-3]	Newark, N. J.	E. V. Parsonnet	5,060	16,339	117	41	1	4	75
Albany Hospital [1-3]	Albany, N. Y.	E. H. Campbell	2,903	2,201	73	39	4	8	110
Brooklyn Hospital [1-3]	Brooklyn	W. H. Field	2,967	5,749	40	16	1	7	100
Coney Island Hospital [1-3]	Brooklyn	J. E. Hammett	2,328	.....	115	48	2	8	93.20
Cumberland Hospital [1-3]	Brooklyn	J. J. Gainey	2,387	17,614	94	19	5	8	99
Jewish Hospital [1-3]	Brooklyn	L. Berger	3,311	6,701	41	20	5	8	75
Kings County Hospital, University Service [1-3]	Brooklyn	C. Dennis	5,051	15,527	315	62	3	13	93
Long Island College Hospital [1-3]	Brooklyn	E. J. Browder	2,563	7,718	61	26	2	5	75
Maimonides Hospital [1-3]	Brooklyn	C. B. Ripstein	2,629	12,144	97	35	10	15	35
Methodist Hospital [1-3]	Brooklyn	S. G. Clark P. A. Renaud	2,508	5,669	32	15	2	5	75
Wyckoff Heights Hospital [1-3]	Brooklyn	P. A. Zoller	1,811	1,551	67	12	3	12	100
Buffalo General Hospital [1-3]	Buffalo, N. Y.	J. R. Paine	3,008	2,614	91	48	..	7	125
Edward J. Meyer Memorial Hospital [1]	Buffalo, N. Y.	J. D. Stewart	1,372	2,636	123	48	2	10	179
Millard Fillmore Hospital [1-3]	Buffalo, N. Y.	H. N. Kenwell	4,193	36	86	38	2	8	255
Sisters of Charity Hospital [1-3]	Buffalo, N. Y.	J. C. Brady	8,478	2,828	201	68	2	8	210
Mary Imogene Bassett Hospital [1-3]	Cooperstown, N. Y.	M. A. McIver	1,110	9,721	34	23	2	4	83.33
Meadowbrook Hospital [1-3]	Hempstead, N. Y.	A. S. Warinner	1,722	851	106	49	3	9	225
Queen's General Hospital [1-3]	Jamaica, N. Y.	C. L. Davidson	3,363	12,970	438	144	2	6	93.33
Nassau Hospital [1-3]	Mineola, N. Y.	O. O. Hudson	3,279	.....	62	23	1	4	...
Bellevue Hospital Center									
Division I—Columbia University [1-3]	New York City	F. B. Berry	2,218	10,893	84	30	4	12	90
Division II—Cornell University [1-3]	New York City	O. W. Holman	1,965	10,912	79	22	4	12	98.60
Division III—N. Y. University College of Med. [1-3]	New York City	J. Mulholland	2,761	5,297	134	37	5	13	98
Division IV—New York University Post-Graduate Medical School [1-3]	New York City	J. W. Hinton	2,526	8,616	105	48	11	45	98
Beth Israel Hospital [1-3]	New York City	L. Ginzburg	1,936	2,149	40	16	2	4	60
Flower and Fifth Avenue Hospitals [1-3]	New York City	J. M. Winfield	4,180	4,551	145	42	5	7	...
Goldwater Memorial Hospital [1-3]	New York City	C. W. Cutler, Jr.	371	510	72	16	2	8	98
Harlem Hospital [1-3]	New York City	A. deL. Maynard	1,322	.....	79	13	4	12	98.32
Lenox Hill Hospital [1-3]	New York City	F. M. Donehue	3,397	5,594	72	25	2	8	180
Metropolitan Hospital [1-3]	New York City	J. M. Winfield	1,789	8,470	91	39	2	6	98
Montefiore Hospital [1-3]	New York City	E. S. Hurwitt	1,938	3,601	94	45	3	8	60
Mount Sinai Hospital [1-3]	New York City	M. Ravitch	3,510	7,937	123	82	15	21	50
New York Hospital [1-3]	New York City	F. Glenn	4,659	46,863	175	103	13	27	25
New York Polyclinic Medical	New York City	R. E. Brennan	3,675	35,929	49	26	3	12	...
New York University-Bellevue		(See also Bellevue Hospital Center, Division IV)							
University Hospital [1-3]	New York City	J. W. Hinton	3,908	6,148	94	38	..	..	...
Presbyterian Hospital [1-3]	New York City	G. H. Humphreys	3,669	47,578	135	45	7	28	208.33
Roosevelt Hospital [1-3]	New York City	J. E. Thompson							
St. Luke's Hospital [1-3]	New York City	H. A. Patterson F. H. Amendola P. C. Morton	3,946	10,463	120	32	6	18	116
St. Vincent's Hospital [1-3]	New York City	B. R. Shore L. M. Rousselot	3,735 5,235	21.856 21,616	95 178	45 88	6 6	12 16	60 50
Genesee Hospital [1-3]	Rochester, N. Y.	S. J. Stabins	2,358	2,329	51	37	2	6	75
	Rochester, N. Y.	W. W. Fenstermacher	5,143	2,573	77	52	4	12	100
	Rochester, N. Y.	J. J. Morton	2,757	10,163	159	106	7	19	41.66
	Syracuse, N. Y.	A. B. Raffl	11,668	5,390	200	84	6	12	191.66
White Plains Hospital [1-3]	White Plains, N. Y.	E. G. Ramsdell	3,216	1,020	59	28	1	4	125
Duke Hospital [1-3]	Durham, N. C.	D. Hart	1,986	13,343	31	16	6	20	25
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	H. H. Bradshaw	1,330	2,703	18	11	3	13	41.66
City Hospital [1-3]	Akron, Ohio	S. Schlueter	2,534	913	98	30	6	14	250
Peoples Hospital [1-3]	Akron, Ohio	R. E. Brubaker	1,701	1,109	21	10	4	11	250
Mercy Hospital [1-3]	Canton, Ohio	S. Hill	5,919	186	94	22	4	10	200
Cincinnati General Hospital [1-3]	Cincinnati	W. A. Altemeier	2,858	22,497	247	116	8	26	...
City Hospital [1-3]	Cleveland	F. A. Simeone	1,788	15,770	163	84	..	..	90
Cleveland Clinic Hospital [1-3]	Cleveland	R. S. Dinsmore	2,265	12,143	59	36	10	23	175
Lutheran Hospital [1-3]	Cleveland	J. H. Lazzari	3,995	.....	74	34	2	5	162.50
Mount Sinai Hospital [1-3]	Cleveland	S. O. Freedlander	2,549	2,824	47	19	5	11	...
St. Alexis Hospital [1-3]	Cleveland	C. R. Lulenski	5,935	1,408	123	41	4	10	250
St. John's Hospital [1-3]	Cleveland	F. T. Gallagher	2,943	397	62	12	3	8	...
St. Luke's Hospital [1-3]	Cleveland	D. M. Glover	3,702	2,642	84	43	2	8	120
St. Vincent Charity Hospital [1]	Cleveland	E. P. Neary	5,208	16,276	147	30	4	12	...
University Hospitals [1-3]	Cleveland	W. D. Holden	4,671	8,879	129	90	7	21	25
University Hospitals									
University Hospital [1-3]	Columbus, Ohio	R. M. Zollinger	5,524	7,868	202	123	11	36	150
Lakewood Hospital [1-3]	Lakewood, Ohio	N. W. Thiessen	1,549	64	30	16	4	7	150
St. Elizabeth's Hospital [1-3]	Youngstown, Ohio	J. A. Renner	1,885	375	27	8	2	5	200
Youngstown Hospital [1-3]	Youngstown, Ohio	A. E. Brant	8,619	973	129	60	2	8	125
University Hospitals [1-3]	Oklahoma City	F. M. Lingenfelter	1,016	4,650	49	22	2	5	50
St. Vincent's Hospital [1]	Portland, Ore.	D. B. Seabrook	5,515	251	75	43	2	5	165
University of Oregon Medical School Hospitals and Clinics [1]	Portland, Ore.	W. K. Livingston	1,437	7,443	75	48	2	8	85
Abington Memorial Hospital [1-3]	Abington, Pa.	D. B. Pfeiffer	2,699	2,067	80	33	1	4	100
George F. Geisinger Memorial Hospital [1-3]	Danville, Pa.	H. L. Foss	2,279	10,956	46	18	..	4	100

Numerical and other references will be found on pages 373 and 374.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Service	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Harrisburg Hospital [1-3]	Harrisburg, Pa.	P. Kunkel	3,360	20,031	89	30	1	8	200
Harrisburg Polyclinic Hospital	Harrisburg, Pa.	W. K. McBride	4,138	4,346	83	25	1	3	250
Germantown Dispensary and Hospital [1-3]	Philadelphia	S. D. Weeder	2,682	3,126	106	43	1	4	150
Hahnemann Medical College and Hospital [1-3]	Philadelphia	W. L. Martin	3,686	11,586	102	28	3	12	50
Hospital of the University of Pennsylvania [1-3]	Philadelphia	I. S. Ravdin	5,063	.....	86	65	7	24	125
Jefferson Medical College Hospital [1-3]	Philadelphia	T. A. Shallow	3,304	8,448	110	50	7	19	...
Lankenau Hospital [1-3]	Philadelphia	J. M. Deaver G. O. Engel	2,553	11,182	43	29	2	6	100
Pennsylvania Hospital [1-3]	Philadelphia	J. B. Flick, Sr.	1,541	6,724	86	42	..	7	20
Temple University Hospital [1-3]	Philadelphia	W. E. Burnett	2,427	3,224	74	33	3	12	50
Allegheny General Hospital [1-3]	Pittsburgh	H. E. DeWalt	2,875	3,967	89	19	..	2	150
Pittsburgh Medical Center [1]	Pittsburgh	S. P. Harbison	1,574	.....	22	6	4	11	50
Western Pennsylvania Hospital [1-3]	Pittsburgh	L. H. Landon	3,235	1,556	120	29	2	8	225
Robert Packer Hospital [1-3]	Sayre, Pa.	D. Guthrie	3,409	6,516	46	31	3	7	100
York Hospital [1-3]	York, Pa.	J. F. Bacon	4,759	4,631	112	42	1	3	250
Rhode Island Hospital [1-3]	Providence, R. I.	J. M. Beardsley	4,592	12,439	144	54	5	11	60
Roper Hospital [1-3]	Charleston, S. C.	F. E. Kredel	3,300	29,329	167	60	3	7	83
Baptist Memorial Hospital [1-3]	Memphis, Tenn.	A. R. Porter	7,277	1,662	71	29	2	8	100
City of Memphis Hospitals [1-3]	Memphis, Tenn.	H. Wilson	2,615	.....	183	84	2	7	35
George W. Hubbard Hospital of Meharry Medical College [1-3]	Nashville, Tenn.	M. Walker	927	7,722	56	22	3	9	125
Vanderbilt University Hospitals									
Nashville General Hospital [1-3]	Nashville, Tenn.	R. A. Daniel	2,359	26,582	73	12	2	6	50
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	H. W. Scott	3,443	14,759	89	46	4	13	50
St. Thomas Hospital [1-3]	Nashville, Tenn.	L. W. Edwards	5,297	.....	30	10	4	14	200
Baylor University Hospital [1-3]	Dallas, Texas	J. W. Duckett	3,005	2,333	39	15	3	9	75
Parkland Hospital [1-3]	Dallas, Texas	B. Wilson	1,294	6,689	58	21	5	12	50
University of Te[illegible]	[illegible]lveston, Texas	R. M. Moore	1,054	7,122	35	21	3	12	...
Jefferson Davis [illegible]	[illegible]ouston, Texas	M. E. DeBakey	2,000	17,146	104	52	6	15	60
Salt Lake County General Hospital [1-3]	Salt Lake City	P. B. Price	922	8,481	70	42	3	9	...
University of Virginia Hospital [1-3]	Charlottesville, Va.	E. P. Lehman	2,224	11,238	59	28	7	15	50
Chesapeake and Ohio Hospital [1-3]	Clifton Forge, Va.	J. M. Emmett	3,438	8,895	29	11	3	8	150
Norfolk General Hospital [1-3]	Norfolk, Va.	W. E. Butler	2,100	1,562	39	22	4	10	125
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	I. A. Bigger	4,680	6,177	107	39	9	24	50
King County Hospital—Unit No. 1 (Harborview)	Seattle, Wash.	H. N. Harkins	2,047	12,983	166	92	5	11	110
Virginia Mason Hospital [1-3]	Seattle, Wash.	J. W. Baker	4,251	24,472	64	46	3	11	100
University Hospitals [1-3]	Madison, Wis.	E. R. Schmidt	2,158	9,696	85	60	4	16	50
Milwaukee County Hospital [1-3]	Milwaukee	C. F. Conroy	6,030	11,322	268	90	4	11	208.92
Milwaukee Hospital [1-3]	Milwaukee	C. S. Rife	4,980	3,975	43	15	2	4	150

The following services have been approved for three years of training by the Council, the American Board of Surgery and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery. (See also additional lists of approved services, pp. 361-364 and 367-369.)

Hospitals, 245; Assistant Residencies and Residencies, 1,567

FEDERAL

UNITED STATES ARMY

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Service	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Tripler Army Hospital [66]	Honolulu, T. H.	L. C. Ball	5,248	7,897	28	22	2	6	...

UNITED STATES NAVY

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Service	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
U. S. Naval Hospital [1]	Portsmouth, Va.	C. F. Storey	4,946	7,159	24	17	..	2	...

UNITED STATES PUBLIC HEALTH SERVICE

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Service	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
U. S. Public Health Service Hospital [1]	New Orleans	O. C. Williams	2,163	4,017	37	31	1	4	...
U. S. Public Health Service Hospital [1]	Baltimore, Md.	H. D. Fishburn	4,262	27,749	118	90	2	7	...
U. S. Public Health Service Hospital	Boston	T. S. McGowan	1,850	5,330	17	13	1	4	...
U. S. Public Health Service Hospital [1]	Staten Island, N. Y.	J. D. Lane, Jr.	6,341	31,117	58	36	4	10	...
U. S. Public Health Service Hospital [1]	Seattle, Wash.	P. E. Walker	2,442	12,890	27	20	2	8	...

VETERANS ADMINISTRATION

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Service	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
[illegible] [1-3]	Tuskegee, Ala.	A. G. Yancey	1,666	172	34	23	3	9	...
[illegible] [1-3]	Little Rock, Ark.	R. J. Lipin	819	.....	37	25	4	4	...
[illegible] [1-3]	Coral Gables, Fla.	M. H. Todd	2,763	1,234	83	73	5	14	...
[illegible] [1]	Atlanta, Ga.	J. D. Martin	2,037	.....	49	33	6	14	...
[illegible] [1-3]	Augusta, Ga.	J. C. Thoroughman	854	1,390	23	16	6	10	...
[illegible] [1-3]	Wichita, Kan.	A. H. Hinshaw	1,472	.....	37	26	4	8	...
[illegible] [1-3]	Lincoln, Neb.	B. R. Walske	1,507	780	22	15	2	7	...
[illegible] [1]	Albuquerque, N. Mex.	W. A. Childs	1,335	6,295	19	[illegible]	9	9	...
Veterans Admin. Hospital [1-3]	Albany, N. Y.	J. A. Nelson	742	1,111	32	[illegible]	4	14	...
Veterans Admin. Hospital [3]	Columbia, S. C.	K. M. Lippert	1,063	837	23	10	1	3	...
Veterans Admin. Hospital [1-3]	Martinsburg, W. Va.	R. Hollingsworth	1,564	705	23	16	3	8	...
Veterans Admin. Hospital [1-3]	San Juan, P. R.	L. A. Passalacqua	1,620	610	13	9	2	6	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Service	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Carraway Methodist Hospital [1-3]	Birmingham, Ala.	O. N. Carraway B. M. Carraway	833	19,143	21	7	2	4	150
City Hospital	Mobile, Ala.	E. B. Frazer	1,522	3,768	54	23	3	3	175
San Joaquin General Hospital [1-3]	French Camp, Calif.	W. Brock	2,142	14,329	91	70	3	7	235
General Hospital of Fresno County [1-3]	Fresno, Calif.	H. M. Ginsburg	1,184	4,780	52	23	2	6	231
California Hospital [1-3]	Los Angeles	W. H. Olds	2,909	1,285	59	23	2	8	150
Cedars of Lebanon Hospital [1-3]	Los Angeles	D. Rosenbaum S. Herzikoff	2,043	4,432	28	16	1	4	150
Hospital of the Good Samaritan [1-3]	Los Angeles	G. K. Smith	2,419	3,609	17	10	2	7	150
Presbyterian Hospital-Olmsted Memorial [1-3]	Los Angeles	R. F. Golden	2,700	162	38	19	1	3	175
Queen of Angels Hospital [1-3]	Los Angeles	W. Sullivan	3,468	.....	77	52	1	4	150
St. Vincent's Hospital [3]	Los Angeles	F. J. Breslin	5,639	.....	27	11	1	3	150
White Memorial Hospital [1-3]	Los Angeles	C. E. Stafford	1,312	6,109	37	25	2	6	146.25
Mercy Hospital [1-3]	San Diego	J. J. O'Hara	7,729	.....	20	7	1	4	175
San Diego County General Hospital [1-3]	San Diego	A. H. Lorch	1,212	4,155	88	27	4	7	150
French Hospital [1-3]	San Francisco	W. L. Rogers	2,628	2,480	59	19	2	3	125
St. Joseph's Hospital [1-3]	San Francisco	G. F. Cushman	2,578	308	26	11	1	3	150
St. Mary's Hospital [1-3]	San Francisco	E. Butler	4,768	3,641	85	16	8	6	150
Southern Pacific General Hospital [1-3]	San Francisco	V. M. Strange	1,486	.....	13	7	4	8	150
Harbor General Hospital [1-3]	Torrance, Calif.	J. M. Farris	1,266	5,250	64	36	4	14	190
Presbyterian Hospital [1-3]	Denver	K. C. Sawyer	1,573	.....	20	11	2	2	...
St. Anthony Hospital [1-3]	Denver	R. M. Burlingame	5,022	1,169	37	17	1	3	225
St. Joseph's Hospital [1]	Denver	F. R. Harper	1,998	.....	25	12	1	3	150

Numerical and other references will be found on pages 373 and 374.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
St. Luke's Hospital[1-3]	Denver	D. R. Higbee	4,434	.....	67	33	2	5	150
Bridgeport Hospital[1-3]	Bridgeport, Conn.	M. L. Cheney	4,550	.....	105	34	1	4	125
St. Vincent's Hospital[1-3]	Bridgeport, Conn.	W. Curley	2,372	665	56	14	2	6	...
St. Francis Hospital[1-3]	Hartford, Conn.	B. B. Landry	3,901	449	72	31	1	8	100
Grace-New Haven Community		(See also Grace-New Haven Community Hospital—University Service)							
General Service[1-3]		L. C. Foster	.....	.....	..	..	..	..	...
Hospital of St. Raphael[3]		G. Connor	3,080	1,334	69	47	4	11	100
Waterbury Hospital[1]	Waterbury, Conn.	H. F. Morrill	3,962	1,999	83	42	1	4	125
Doctors Hospital[1-3]	Washington, D. C.	C. S. White	2,930	.....	45	32	2	5	200
Duval Medical Center[1-3]	Jacksonville, Fla.	E. Jelks	2,021	13,182	97	37	2	5	150
St. Vincent's Hospital[1-3]	Jacksonville, Fla.	F. Waas	2,201	.....	39	22	3	7	135
Jackson Memorial Hospital[1]	Miami, Fla.	W. C. Jones	4,443	15,193	133	60	6	15	75
Mount Sinai Hospital[1-3]	Miami Beach, Fla.	R. M. Fleming	3,332	1,744	61	30	1	3	...
Crawford W. Long Memorial Hospital[1-3]	Atlanta, Ga.	C. E. Holloway	4,811	1,835	37	9	6	9	87.50
Georgia Baptist Hospital[1-3]	Atlanta, Ga.	T. C. Davison	2,132	997	21	4	4	9	280
St. Joseph's Infirmary[1-3]	Atlanta, Ga.	W. P. Nicolson, Jr.	3,235	1,604	43	24	1	3	160
Emory University Hospital[1-3]	Emory University, Ga.	D. C. Elkin	2,891	.....	25	11	6	7	170
American Hospital[1-3]	Chicago	P. Thorek M. Thorek	2,039	.....	56	..	5	8	50
Augustana Hospital[1-3]	Chicago	O. E. Nadeau	3,587	4,600	57	31	3	7	150
Chicago Memorial Hospital[1-3]	Chicago	J. V. Prohaska	1,967	1,500	18	10	..	3	200
Grant Hospital[1-3]	Chicago	P. H. McDaniel	1,401	5,194	45	29	2	2	...
Illinois Masonic Hospital[1-3]	Chicago	P. Shambaugh	1,827	8,415	48	20	3	6	85
Lutheran Deaconess Hospital[1-3]	Chicago	J. D. Koucky	4,103	460	52	10	1	3	200
Provident Hospital[1-3]	Chicago	W. S. Grant	1,674	3,554	48	17	1	3	200
St. Elizabeth Hospital[3]	Chicago	M. G. Luken	3,561	.....	13	5	2	3	125
St. Joseph Hospital[1-3]	Chicago	B. Fitzgerald	1,193	440	25	10	2	2	200
St. Mary of Nazareth Hospital	Chicago	E. H. Warszewski	3,834	1,967	39	11	2	6	150
Evanston Hospital[1-3]	Evanston, Ill.	J. M. Dorsey	1,597	3,609	32	20	1	3	50
St. Francis Hospital[1-3]	Evanston, Ill.	D. P. Slaughter	3,165	2,897	101	46	2	6	150
West Suburban Hospital	Oak Park, Ill.	H. A. Oberhelman	3,578	3,952	63	24	2	4	150
St. Elizabeth Hospital[1-3]	Lafayette, Ind.	D. H. McKinney	4,568	1,561	78	32	1	4	175
St. Margaret Hospital	Kansas City, Kan.	M. V. Laing	2,788	2,811	27	17	1	4	...
Wesley Hospital[1-3]	Wichita, Kan.	W. J. Kiser	1,282	.....	19	3	1	4	200
St. Joseph Hospital[1-3]	Lexington, Ky.	F. W. Rankin	1,890	1,380	62	28	3	7	120
Ochsner Foundation Hospital[1-3]	New Orleans	A. Ochsner	1,121	12,006	31	23	6	16	150
Southern Baptist Hospital[1]	New Orleans	C. R. Walters	7,755	.....	48	..	1	3	225
Touro Infirmary[1]	New Orleans	I. W. Kaplan	3,821	4,701	59	32	2	6	35
Lutheran Hospital[1-3]	Baltimore	W. E. Gilmore	2,341	2,397	..	..	2	7	120
Maryland General Hospital[1-3]	Baltimore	W. M. Firor	3,624	1,275	97	31	4	8	100
Provident Hospital and Free Dispensary[1-3]	Baltimore	R. L. Jackson	1,118	417	36	4	..	4	...
St. Agnes Hospital[1-3]	Baltimore	G. A. Stewart	1,853	691	30	2	2	4	125
St. Joseph's Hospital[1-3]	Baltimore	E. L. Gaspari	1,751	442	25	14	1	3	200
South Baltimore General Hospital[1-3]	Baltimore	G. H. Yeager	1,847	2,281	40	9	4	7	...
Beverly Hospital	Beverly, Mass.	P. P. Johnson	2,248	8,473	33	25	2	5	100
Boston City Hospital[1-3]	Boston	....	10,150	55,212	544	134	25	68	112
II—Surgical Service		G. W. Papen							
IV—Surgical Service		J. H. Burnett							
Children's Medical Center[1-3]	Boston	R. E. Gross	1,468	12,570	56	..	..	11	50
St. Elizabeth Hospital[1-3]	Boston	J. W. Spellman	5,053	5,768	76	25	3	6	125
Cambridge City Hospital[1-3]	Cambridge, Mass.	J. B. Vernaglia	1,630	7,177	77	30	1	3	125
Mount Auburn Hospital[1-3]	Cambridge, Mass.	S. J. G. Nowak	3,064	1,388	53	25	..	3	115
Malden Hospital[1-3]	Malden, Mass.	W. E. Garrey	3,952	.....	62	25	3	6	100
Newton-Wellesley Hospital[1-3]	Newton Lower Falls, Mass.	R. I. Smith	2,449	905	158	63	1	3	170
Springfield Hospital[1-3]	Springfield, Mass.	J. L. Smead	3,981	1,262	75	37	3	8	75
Memorial Hospital[1-3]	Worcester, Mass.	B. C. Wheeler	5,792	461	72	36	1	5	200
Worcester City Hospital[1-3]	Worcester, Mass.	E. J. Croce	2,887	.....	101	43	1	4	200
Leila Y. Post Montgomery Hospital[1-3]	Battle Creek, Mich.	R. L. Mustard	1,204	.....	29	5	2	2	275
Alexander Blain Hospital[1-3]	Detroit	A. Blain	1,806	36,846	25	10	3	9	250
Detroit Memorial Hospital[1-3]	Detroit	G. K. Glasgow	2,214	405	26	11	1	4	225
Evangelical Deaconess Hospital[1-3]	Detroit	E. C. Baumgarten	1,914	187	23	7	1	5	260
Mount Carmel Mercy Hospital[1]	Detroit	F. G. Hicks	9,916	65	118	36	3	12	225
Providence Hospital[1-3]	Detroit	G. M. O'Brien	6,291	.....	105	36	1	4	250
St. Joseph Mercy Hospital[1]		D. J. Leithauser	1,618	467	14	7	1	3	225
McLaren General Hospital		H. B. Elliott	3,252	715	10	7	1	3	325
Blodgett Memorial Hospita		R. H. Meade	1,507	86	30	21	1	3	200
St. Mary's Hospital[1]		S. L. Moleski	3,894	1,062	78	30	2	4	200
Bronson Methodist Hospit		A. B. Hodgman	2,586	3,627	53	33	1	3	250
Pontiac General Hospital[1]		V. C. Abbott	4,463	.....	88	37	1	3	225
Saginaw General Hospital[1-3]	Saginaw, Mich.	H. M. Bishop	2,924	2,846	78	39	1	3	320
Mount Sinai Hospital[1-3]	Minneapolis	....	2,263	1,589	24	19	2	6	200
Northwestern Hospital	Minneapolis	E. T. Evans	2,410	.....	14	7	1	3	200
St. Barnabas Hospital	Minneapolis	J. H. Strickler	1,162	.....	16	15	2	2	175
St. Joseph's Hospital	St. Paul	....	.....	.....	..	..	..	..	...
Mayo Foundation[1-3]	Rochester, Minn.	....	40,934	40,934	223	167	46	140	150
Lutheran Hospital	Vicksburg, Miss.	W. H. Parsons	1,416	.....	27	13	2	4	50
Mercy Hospital-Street Memorial[1-3]	Vicksburg, Miss.	A. Street	2,355	26,581	52	19	1	4	225
St. Louis County Hospital[1-3]	Clayton, Mo.	C. Doyle	675	14,383	51	20	2	6	225
Kansas City General Hospital No. 2[1-3]	Kansas City, Mo.	M. S. Harless	830	7,968	74	34	2	6	75
Research Hospital[1-3]	Kansas City, Mo.	C. J. Hunt	3,846	6,161	20	16	2	6	175
St. Joseph Hospital[3]	Kansas City, Mo.	R. R. Coffey	8,116	6,585	69	31	1	4	200
St. Luke's Hospital[1-3]	Kansas City, Mo.	M. A. Ziegler	3,891	.....	53	32	2	4	175
De Paul Hospital[1-3]	St. Louis	J. W. Thompson	2,186	382	59	21	1	3	185
Missouri Baptist Hospital[1-3]	St. Louis	G. Rendleman	2,300	.....	64	18	2	5	175
St. John's Hospital[1-3]	St. Louis	G. T. Gafney	3,610	934	78	27	3	5	150
St. Luke's Hospital[1-3]	St. Louis	C. E. Lischer	1,387	1,136	32	15	2	4	...
Creighton Memorial, St. Joseph's Hospital[1]	Omaha, Neb.	H. H. McCarthy	5,112	7,294	98	43	4	16	150
Atlantic City Hospital[1]	Atlantic City, N. J.	D. B. Allman	1,960	23,474	53	14	1	3	150
Cooper Hospital[1-3]	Camden, N. J.	I. E. Deibert	2,534	4,503	103	39	1	3	200
West Jersey Hospital[1-3]	Camden, N. J.	H. W. Jack	1,571	1,631	44	25	..	2	200
Medical Center–Jersey City Hospital[1-3]	Jersey City, N. J.	E. J. Halligan	6,623	21,980	268	63	8	25	66.75
Burlington County Hospital[1-3]	Mt. Holly, N. J.	T. J. Summey	1,436	1,674	34	16	1	2	100
City Hospital[1-3]	Newark, N. J.	C. E. Rich	1,366	1,030	127	45	3	9	...
Hospital of St. Barnabas and for Women and Children[1-3]	Newark, N. J.	C. J. Reilly	2,172	2,092	45	23	1	4	100
Orange Memorial Hospital[1-3]	Orange, N. J.	C. W. Scranton	3,136	2,599	82	34	1	3	125
St. Francis Hospital[1-3]	Trenton, N. J.	S. Sica	5,657	11,931	138	32	2	8	210
Binghamton City Hospital[1-3]	Binghamton, N. Y.	R. C. Goudey	3,150	936	86	37	2	4	150
Beth-El Hospital[1-3]	Brooklyn	H. Neuhof	2,182	14,984	52	5	5	11	100
Greenpoint Hospital[1-3]	Brooklyn	J. Smith	2,397	12,594	109	22	2	6	...

Numerical and other references will be found on pages 373 and 374.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Kings County Hospital, County Division[1-3]	Brooklyn	J. Raycroft	5,376	20,409	312	67	3	11	93
Norwegian Lutheran Deaconesses' Home and Hosp.[1-3]	Brooklyn	R. P. San Filippo	2,088	2,617	58	27	..	3	100
St. Catherine's Hospital[1-3]	Brooklyn	J. A. McCabe	3,450	5,047	52	18	2	4	125
St. John's Episcopal Hospital[1-3]	Brooklyn	M. N. Foote	1,867	4,399	61	24	1	1	115
St. Mary's Hospital[1-3]	Brooklyn	A. J. McGowan	1,110	2,946	37	11	1	3	175
Deaconess Hospital[1-3]	Buffalo, N. Y.	T. T. Jacobs	4,567	38	52	15	3	3	175
Clifton Springs Sanitarium & Clinic[1-3]	Clifton Springs, N. Y.	R. M. Price	1,670	8,517	23	17	1	3	100
Flushing Hospital & Dispensary[1-3]	Flushing, N. Y.	C. N. Baker	4,729	15,006	79	31	1	3	125
Jamaica Hospital[3]	Jamaica, N. Y.	E. J. Patterson	1,568	2,170	60	18	1	4	175
Mary Immaculate Hospital[1-3]	Jamaica, N. Y.	H. W. Draffen I. B. Safferstone	4,379	4,401	84	18	2	6	110
Charles S. Wilson Memorial Hospital[1-3]	Johnson City, N. Y.	D. Smith	3,150	13,758	43	23	3	8	175
Mount Vernon Hospital[3]	Mt. Vernon, N. Y.	N. W. Cornell	3,288	1,414	52	20	1	3	125
New Rochelle Hospital[3]	New Rochelle, N. Y.	G. C. Adie	4,133	3,902	91	33	1	4	125
Beth David Hospital[1-3]	New York City	L. Breidenbach	2,444	3,335	42	7	1	3	125
Bronx Hospital[1-3]	New York City	F. Friedlander	2,967	4,585	71	14	2	8	50
Fordham Hospital[1-3]	New York City	L. Marton	2,897	17,877	245	42	2	6	93.33
French Hospital[1-3]	New York City	H. B. Keyes	2,615	3,403	70	24	1	4	50
Knickerbocker Hospital[1-3]	New York City	R. H. Patterson	2,610	4,294	51	11	2	4	110
Lenox Hill Hospital[1-3]	New York City	F. M. Donehue H. C. Maier	3,397	5,594	72	25	2	8	180
Lincoln Hospital[1-3]	New York City	F. H. Amendola	2,796	16,810	149	24	6	14	65
Memorial Center for Cancer and Allied Diseases[1-3]	New York City	H. T. Randall	8,439	116,744	497	233	26	51	93
Morrisania City Hospital[1-3]	New York City	R. J. Azzari	947	4,477	67	22	2	6	93
New York City Hospital[1-3]	New York City	W. M. Weeden	2,512	11,425	94	26	2	4	150
St. Clare's Hospital[1]	New York City	J. L. Madden	3,373	6,271	132	30	2	8	50
St. Francis Hospital[1]	New York City	J. P. Alvich	2,202	3,099	66	12	1	3	125
Highland Hospital[1-3]	Rochester, N. Y.	H. Ziegler	4,174	667	55	40	3	6	100
St. Mary's Hospital[1-3]	Rochester, N. Y.	N. J. Pfaff	6,435	1,855	..	19	2	6	200
Ellis Hospital[1]	Y.	S. F. MacMillan	4,846	866	65	..	2	4	...
Grasslands Hospital[1-3]	Y.	G. C. Adie	457	2,513	57	32	1	4	125
North Carolina Mem	C.	N. A. Womack	284	.....	9	9	4	15	...
Charlotte Memorial	C.	T. D. Sparrow	1,701	5,510	13	7	1	4	150
Lincoln Hospital[1-3]	C.	H. M. Schiebel	778	1,356	24	8	4	7	150
Watts Hospital[1]	Durham, N. C.	H. M. Schiebel	3,710	22,125	86	8	2	6	150
Rex Hospital[1-3]	Raleigh, N. C.	A. Webb	4,854	6,616	50	11	1	3	200
City Memorial Hospital	Winston-Salem, N. C.	J. F. Marshall	2,811	5,054	41	26	2	5	200
St. Thomas Hospital[1-3]	Akron, Ohio	D. E. Banks	4,284	492	23	9	2	7	250
Aultman Hospital[1-3]	Canton, Ohio	H. J. Bowman	3,992	840	123	70	4	8	225
Christ Hospital[1]	Cincinnati	E. A. Kindel	2,313	8,316	75	29	2	5	200
Good Samaritan Hospital[1-3]	Cincinnati	L. B. Johnston	2,485	.....	49	20	2	8	175
Jewish Hospital[1-3]	Cincinnati	J. D. Heiman	5,601	482	69	44	4	10	145
St. Mary's Hospital[1-3]	Cincinnati	R. D. Mansfield	1,443	18,353	43	14	1	3	250
Mount Carmel Hospital[1]	Columbus, Ohio	W. H. Teachnor	4,189	2,176	110	86	1	3	250
White Cross Hospital[1-3]	Columbus, Ohio	R. E. S. Young	4,661	.....	66	19	2	4	375
Miami Valley Hospital[1-3]	Dayton, Ohio	R. D. Snyder	3,160	1,994	61	29	2	6	210
Huron Road Hospital[1-3]	East Cleveland, Ohio	L. A. Steinhilber	2,601	206	68	27	2	6	210
St. Rita's Hospital[1-3]	Lima, Ohio	A. M. Barone	4,697	1,763	65	39	1	3	175
Maumee Valley Hospital[1-3]	Toledo, Ohio	W. H. Meffley	1,330	6,621	107	73	2	5	210
Mercy Hospital[1-3]	Toledo, Ohio	E. L. Gaspari	1,751	442	25	14	1	3	200
St. Vincent's Hospital[1-3]	Toledo, Ohio	B. G. Shaner	2,905	.....	86	42	2	5	225
Toledo Hospital[1-3]	Toledo, Ohio	F. P. Osgood	3,143	213	51	40	1	3	200
St. Anthony Hospital	Oklahoma City, Okla.	L. J. Starry	5,022	1,139	111	30	1	3	150
Hillcrest Medical Center[1]	Tulsa, Okla.	P. Atkins, Jr.	6,352	.....	35	16	4	8	150
St. John's Hospital[1]	Tulsa, Okla.	H. White	1,987	.....	32	5	2	5	150
Emanuel Hospital[1-3]	Portland, Ore.	J. M. Guiss	2,997	.....	33	26	1	3	100
Allentown Hospital[1-3]	Allentown, Pa.	R. L. Schaeffer	2,274	1,116	82	38	1	3	225
Sacred Heart Hospital[1]	Allentown, Pa.	J. Nass	5,271	3,654	105	49	1	1	200
St. Luke's Hospital[1-3]	Bethlehem, Pa.	D. P. Walker	4,142	337	97	31	5	5	275
Bryn Mawr Hospital[1-3]	Bryn Mawr, Pa.	F. R. Robbins	3,027	1,488	70	39	2	5	100
Hamot Hospital[1-3]	Erie, Pa.	A. F. Jonas	4,671	1,663	91	39	1	3	200
St. Vincent's Hospital[1-3]	Erie, Pa.	J. W. Schilling	2,936	791	102	42	1	3	100
St. Joseph's Hospital[1]	Lancaster, Pa.	J. L. Atlee, Jr.	4,443	7,119	88	60	1	3	150
Albert Einstein Medical Center									
Northern Division[1-3]	Philadelphia	R. Goldsmith	3,625	6,765	127	52	2	6	100
Southern Division[1-3]	Philadelphia	B. Lipshutz L. Kaplan	2,912	11,284	39	20	3	3	75
Episcopal Hospital[1]	Philadelphia	J. W. Klopp	1,912	8,314	68	21	2	6	100
Frankford Hospital[1-3]	Philadelphia	L. K. Ferguson	1,573	1,180	36	11	1	3	250
Graduate Hospital of	Philadelphia	W. Bates	1,568	9,590	65	34	3	12	...
Hospital of the Wom	Philadelphia	L. K. Ferguson	1,181	5,874	21	7	1	4	60
Methodist Episcopal	Philadelphia	G. Willauer	1,326	10,032	46	13	1	3	200
Philadelphia General Hospital[1-3]	Philadelphia	W. H. Erb	3,777	13,039	424	175	3	7	112.31
Presbyterian Hospital[1-3]	Philadelphia	O. C. King	2,868	5,279	61	37	4	7	100
Woman's Hospital[1-3]	Philadelphia	C. Smyth	787	1,504	13	5	1	2	175
Mercy Hospital[1-3]	Pittsburgh	H. H. Donaldson	3,801	6,245	97	13	1	1	150
Montefiore Hospital[1-3]	Pittsburgh	Y. D. Koskoff	4,798	5,880	67	35	1	4	58.33
Pittsburgh Hospital[1-3]	Pittsburgh	J. W. Stinson	2,040	3,852	66	12	1	3	200
St. Francis Hospital[1-3]	Pittsburgh	E. W. Meredith	3,984	9,448	54	18	1	3	150
Reading Hospital[1-3]	Reading, Pa.	C. B. Rentschler	1,496	1,225	42	15	1	3	125
St. Joseph's Hospital[1-3]	Reading, Pa.	R. R. Impink	1,085	2,609	32	14	1	4	250
Wilkes-Barre General Hospital[1]	Wilkes-Barre, Pa.	M. C. Rumbaugh	2,765	1,017	75	34	1	4	225
Williamsport Hospital[1-3]	Williamsport, Pa.	A. F. Hardt	2,066	898	25	8	..	20	...
Baroness Erlanger Hospital[1-3]	Chattanooga, Tenn.	G. H. Kistler	5,425	4,010	81	26	6	12	125
Knoxville General Hospital[1]	Knoxville, Tenn.	J. B. Ely	628	2,183	31	5	2	5	150
Methodist Hospital	Memphis, Tenn.	B. Malone	6,070	.....	63	21	1	5	100
St. Joseph Hospital[1-3]	Memphis, Tenn.	A. J. Grobmyer	1,626	315	43	17	2	4	...
Mid State Baptist Hospital[1-3]	Nashville, Tenn.	D. W. Smith	3,350	1,955	53	12	3	6	150
Methodist Hospital[1-3]	Dallas, Texas	R. E. Lee	2,505	491	41	16	4	10	125
Hermann Ho	Houston, Texas	G. W. Waldron	5,051	3,316	68	23	2	4	100
St. Joseph's	Houston, Texas	J. P. Barnes	2,414	410	31	8	1	3	150
Robert B. Gr	n Antonio, Texas	T. A. Pressly	1,200	11,175	65	15	2	4	125
Scott and White Memorial Hospitals[1-3]	Temple, Texas	A. C. Scott G. V. Brindley	4,097	5,122	49	12	4	14	250
Wichita Falls Clinic Hospital	Wichita Falls, Texas	W. E. Crump	2,023	34,132	14	2	1	1	...
Dr. W. H. Groves Latter-Day Saints Hospital[1-3]	Salt Lake City	S. S. Smith	7,815	2,136	105	41	2	6	100
Mary Fletcher Hospital[1-3]	Burlington, Vt.	A. G. Mackay	2,333	3,210	39	28	1	3	100
Alexandria Hospital[1-3]	Alexandria, Va.	C. L. Fifer	1,301	2,010	25	9	1	3	200
Johnston-Willis Hospital[1-3]	Richmond, Va.	F. S. Johns	4,053	6,400	11	4	..	1	225
Jefferson Hospital[1-3]	Roanoke, Va.	A. P. Jones	1,494	6,522	13	8	1	4	200

Numerical and other references will be found on pages 373 and 374.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Swedish Hospital [1-3]	Seattle, Wash.	W. B. Hutchinson	8,429	.....	156	105	..	3	100
Beckley Hospital [3]	Beckley, W. Va.	R. G. Stoneburner	2,306	15,804	35	17	1	4	150
Charleston General Hospital [1]	Charleston, W. Va.	H. A. Bailey	2,444	3,466	30	16	2	8	160
Kanawha Valley Hospital [3]	Charleston, W. Va.	J. C. Condry	2,285	2,199	56	18	1	2	200
St. Mary's Hospital [1]	Va.	F. L. Coffey	3,761	4,048	49	16	1	4	175
Laird Memorial Hos	Va.	W. R. Laird	2,174	10,301	48	17	1	2	200
St. Joseph's Hospita	Va.	R. W. Corbitt	2,050	.....	53	8	2	2	300
Myers Clinic Hospita	Va.	H. C. Myers	1,257	10,159	27	18	1	3	200
Ohio Valley General	Va.	J. O. Rankin	1,918	1,765	34	13	1	3	325
Madison General Hospital [1-3]	Madison, Wis.	J. P. Malec	2,653	.....	38	22	..	4	150
Columbia Hospital [1-3]	Milwaukee	F. Raine	1,088	.....	16	8	1	3	125
St. Joseph's Hospital [1]	Milwaukee	F. Stratton	4,983	.....	77	42	2	4	200
Gorgas Hospital [3]	Ancon, C. Z.	E. C. Lowry	2,549	6,109	65	41	2	6	282.55
Queen's Hospital [1-3]	Honolulu, T. H.	J. E. Strode	2,752	5,670	30	12	2	5	135
Bayamon District Hospital	Bayamon, P. R.	J. M. Bertran	1,528	3,918	103	81	1	3	250
San Juan City Hospital [1-3]	San Juan, P. R.	J. N. Benitez	2,537	36,821	59	32	2	5	150

The following hospitals approved by the Council, the American Board of Surgery and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery, offer training in surgery of less than three years' duration, which is integrated with or contributory to a fully approved program. (See also additional lists of approved services, pp. 361-367 and 367-369.)

Hospitals, 44; Assistant Residencies and Residencies, 148

FEDERAL

UNITED STATES NAVY

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
U. S. Naval Hospital [1]	Great Lakes, Ill.	L. L. Bean	2,257	9,065	12	10	..	8	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Glendale Sanitarium and Hospital [1]	Glendale, Calif.	E. Morel	3,149	1,588	54	24	1	3	164.50
Peralta Hospital [1]	Oakland, Calif.	J. L. Lohse	6,295	218	85	30	3	3	250
Samuel Merritt Hospital [1]	Oakland, Calif.	P. C. Samson	1,568	.....	13	8	..	2	105
Santa Barbara General Hospital	Santa Barbara, Calif.	L. G. Fiske	249	868	11	11	4	9	115
Children's Hospital [1-3]	Denver	G. B. Packard	4,833	.....	21	18	1	2	...
Colorado State Hospital [1-3]	Pueblo, Colo.	....	463	2,566	35	15	..	..	275
Children's Memorial Hospital [1-3]	Chicago	W. J. Potts	2,017	2,360	17	13	..	1	75
Henrotin Hospital [1-3]	Chicago	C. B. Puestow	1,454	.....	33	14	1	1	200
St. Francis Hospital [1-3]	[illegible]	C. D. Branch	2,099	7,199	19	10	1	3	...
Broadlawns, Polk		D. W. Coughlan	661	1,112	43	17	..	..	...
Norton Memorial I		G. B. Sanders	1,395	.....	18	10	2	4	200
Lawrence F. Quigley Memorial Hospital [1-3]	Chelsea, Mass.	H. H. Howard	1,503	3,062	23	13	..	4	255
Truesdale Hospital [1-3]	Fall River, Mass.	W. G. Atwood	2,580	2,430	22	12	4	4	75
Salem Hospital [1-3]	Salem, Mass.	W. G. Phippen	1,743	598	50	25	1	1	125
Pondville Hospital	Walpole, Mass.	E. M. Daland	1,380	11,790	124	109	6	4	490
Westfield State Sanatorium [1-3]	Westfield, Mass.	F. S. Hopkins	851	7,519	78	38	3	3	490
Ellis Fischel State Cancer Hospital [1-3]	Columbia, Mo.	H. Schwarz	780	7,680	37	31	..	6	100
St. Louis Children's Hospital [1-3]	St. Louis, Mo.	....	.....	.....	..	..	..	..	...
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	R. E. Weismann	3,289	17,145	27	21	5	17	170
Orange Memorial Hospital [1-3]	Orange, N.J.	C. W. Scranton	3,076	2,599	82	34	1	1	120
John E. Jennings Hospital [1-3]	Brooklyn	J. Gainey	382	8,788	49	18	1	2	150
Children's Hospital [1-3]	Buffalo, N. Y.	L. J. Leahy	939	1,464	21	17	..	2	75
Emergency Hospital	Buffalo, N. Y.	A. J. Manzella	3,777	1,907	80	35	2	8	210
Francis Delafield Hospital [1-3]	New York City	G. Humphreys	700	2,115	181	92	6	13	98
Gouverneur Hospital [1-3]	New York City	F. J. McGowan	960	27,109	58	18	..	..	...
United Hospital [1-3]	Port Chester, N. Y.	J. V. Hibbard	2,275	1,019	82	32	1	3	200
Children's Hospital [1-3]	Akron, Ohio	R. M. Bartlett	1,383	835	18	15	2	8	250
Children's Hospital [1]	Cincinnati	W. A. Altemeier	.....	.....	..	..	..	..	45
Children's Hospital	Columbus, Ohio	R. Zollinger	1,785	1,811	22	20	..	1	150
St. Francis Hospital [1-3]	Columbus, Ohio	R. Zollinger	3,091	.....	102	46	1	4	125
Bradford Hospital [1-3]	Bradford, Pa.	C. H. Smith	557	.....	7	7	2	2	250
Easton Hospital [1-3]	Easton, Pa.	T. C. Zulick, Jr.	3,342	5,820	57	30	..	2	200
Children's Hospital [1-3]	Philadelphia	C. E. Koop	1,503	4,772	26	23	..	4	100
Children's Hospital [1-3]	Pittsburgh	G. V. Foster	1,257	3,247	14	10	1	1	58.82
Gaston Hospital [3]	Dallas, Texas	J. V. Goode	145	.....	..	..	..	3	...
Methodist Hospital [1-3]	Houston, Texas	L. L. D. Tuttle	1,248	234	7	5	2	3	100
M. D. Anderson Hospital for Cancer Research [1-3]	Houston, Texas	R. L. Clark	675	25,636	34	17	..	6	...
Holy Cross Hospital [1-3]	Salt Lake City	P. M. Howard	1,494	.....	8	3	3	5	175
St. Mark's Hospital [1-3]	Salt Lake City	G. L. Wright	3,895	519	26	10	2	2	175
Lewis Gale Hospital	Roanoke, Va.	W. L. Sibley	3,650	14,577	32	4	2	2	200
Children's Orthopedic Hospital [1-3]	Seattle, Wash.	H. E. Coe	1,103	5,675	21	20	..	1	...
Chesapeake and Ohio Hospital [1-3]	Huntington, W. Va.	R. J. Wilkinson	2,007	1,065	33	7	3	4	150
Milwaukee Children's Hospital [1]	Milwaukee	I. Schulz	832	1,613	24	16	..	1	...

The following services are approved by the Council as offering satisfactory training of one or two years' duration in preparation for residency training in the surgical specialties only. Applicants intending to qualify for examination by the American Board of Surgery should refer to the lists of approved services on pp. 361-367 (Surgical Residencies, J. A. M. A., 142:1216, April 15, 1950).

Hospitals, 127; Assistant Residencies and Residencies, 294

FEDERAL

UNITED STATES ARMY

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Army and Navy General Hospital [1-66]	Hot Springs, Ark.	W. W. Nichol	429	571	11	11	1	1	...
U. S. Army Hospital [66]	Camp Cooke, Calif.	....	.....	.....	..	..	..	..	...
U. S. Army Hospital [1-66]	Ft. Benning, Ga.	E. W. Hakala F. T. Kolouch	8,497	5,338	17	11	3	8	...
U. S. Army Hospital [1-66]	Camp Atterbury, Ind.	M. H. Judd	5,757	43,076	18	17	..	..	...
U. S. Army Hospital [1-66]	Fort Campbell, Ky.	H. F. Bertram	5,927	37,586	27	19	4	4	...
U. S. Army Hospital [1-66]	Fort Knox, Ky.	L. R. Steel	1,979	10,473	14	10	1	1	...
Murphy Army Hospital [1-66]	Waltham, Mass.	T. T. Beeler	456	1,249	6	6	1	1	...
Percy Jones Army Hospital [1-66]	Battle Creek, Mich.	G. L. Beatty	892	613	1	..	1	1	...
U. S. Army Hospital [66]	Fort Bragg, N. C.	P. V. Kiehl	5,901	5,916	12	11	1	1	...
Valley Forge Army Hospital [1-66]	Phoenixville, Pa.	H. A. Conrad	4,157	14,184	24	24	1	1	...
William Beaumont Army Hospital [66]	El Paso, Texas	W. H. Vaughan	.....	.....	..	..	1	1	...
U. S. Army Hospital [66]	Fort Belvoir, Va.	R. M. Hardaway	9,034	66,003	8	6	2	2	...
Madigan Army Hospital [66]	Tacoma, Wash.	J. E. Graham	925	6,625	5	5	1	1	...

Numerical and other references will be found on pages 373 and 374.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
UNITED STATES AIR FORCE									
U. S. Air Force Hospital[1]	Rantoul, Ill.	O. K. Park	1,477	3,627	5	4	1	1	...
U. S. Air Force Hospital[1]	Scottfield, Ill.	D. R. Sewell	3,566	55,244	10	3	1	1	...
U. S. Air Force Hospital[1]	San Antonio, Texas	D. Gold	2,386	5,788	15	14	2	2	...
U. S. Air Force Hospital	Wichita Falls, Texas	....	.....	.....	..	..	..	..	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
St. Elizabeths Hospital[1-3]	Washington, D. C.	B. Blades	1,140	6,122	91	65	..	2	...
NONFEDERAL									
Maricopa County General Hospital[1]	Phoenix, Ariz.	T. Bate	964	.....	29	8	..	4	350
St. Joseph's Hospital[1]	Phoenix, Ariz.	W. Cleveland	1,564	.....	18	12	1	1	225
Tucson Medical Center[1-3]	Tucson, Ariz.	D. Bernstein	1,113	2,337	8	4	4	4	200
Arkansas Baptist Hospital[1-3]	Little Rock, Ark.	T. J. Raney	1,290	.....	19	4	2	2	225
General Hospital of Riverside County[1-3]	Arlington, Calif.	S. E. Farley	488	1,334	20	12	1	1	376
Seaside Memorial Hospital[1-3]	Long Beach, Calif.	J. W. Dorsey	2,058	493	18	48	4	4	150
Sante Fe Coast Lines	ngeles	L. Chaffin	986	.....	14	11	2	2	205
Collis P. and Howard	Calif.	W. E. Delphey	3,455	.....	34	18	1	3	240
San Bernardino Count	, Calif.	C. P. Sprague	681	14,656	49	30	3	4	190
Children's Hospital[1]	San Francisco	R. Fleming	584	1,226	8	8	1	1	125
Mary's Help Hospital[1-3]	San Francisco	E. Carlson	1,624	3,179	14	3	1	2	150
St. Luke's Hospital[1-3]	San Francisco	G. D. Delprat	4,422	4,131	36	14	4	7	200
Santa Clara County Hospital[1]	San Jose, Calif.	J. B. Miller	1,060	4,450	45	26	2	4	200
Community Hospital of San Mateo County[1-3]	San Mateo, Calif.	K. H. Prindle	501	.....	8	7	2	2	400
St. John's Hospital	Santa Monica	J. F. Roberts	1,608	462	11	6	1	1	175
Corwin Hospital[1-3]	, Colo.	S. B. Potter	2,395	.....	1	..	1	1	125
McCook Memorial Hospit	Conn.	C. Kelly	922	4,148	16	9	1	2	250
Lawrence and Memorial As	, Conn.	F. B. Hartman	3,708	.....	46	10	2	2	250
Norwalk Hospital	Norwalk, Conn.	E. C. Beck	1,426	186	16	3	2	2	180
St. Mary's Hospital[1-3]	Waterbury, Conn.	C. H. Audet	2,490	1,912	48	16	2	5	150
Sibley Memorial Hospital[1-3]	Washington, D. C.	P. S. Putzki	6,351	.....	49	33	2	4	300
Riverside Hospital[1-3]	Jacksonville, Fla.	E. Jelks	904	5,911	7	4	1	1	150
St. Luke's Hospital[1]	Jacksonville, Fla.	K. A. Morris	1,308	5,938	9	..	3	5	200
St. Francis Hospital[1-3]	Miami Beach, Fla.	G. D. Lilly	1,773	2,692	14	8	2	2	200
Orange Memorial Hospital[1-3]	Orlando, Fla.	J. R. Chappell	1,688	536	42	17	4	9	125
Mound Park Hospital	St. Petersburg, Florida	W. Rautenstrauch	717	.....	37	12	..	..	225
Tampa Municipal Hospital[3]	Tampa, Fla.	C. F. Chunn	2,361	3,514	42	16	1	1	125
MacNeal Memorial Hospital[1-3]	Berwyn, Ill.	W. J. Vynalek	1,969	8,748	47	9	3	3	175
Englewood Hospital[3]	Chicago	M. Wasick	2,053	.....	47	12	1	1	200
Hospital of St. Anthony de Padua[1]	Chicago	R. Johnson	2,365	.....	17	4	2	2	250
Illinois Central Hospital[1]	Chicago	C. C. Guy	3,117	15,000	40	25	2	2	...
Norwegian American Hospital[1-3]	Chicago	B. A. Finne	1,095	.....	10	3	2	4	150
Ravenswood Hospital[1-3]	Chicago	P. McGuire	1,806	2,061	32	21	2	3	75
St. Anne's Hospital[1-3]	Chicago	A. Kraft	2,883	558	19	2	2	2	200
Women and Children's Hospital[1-3]	Chicago	E. Giryotas	4,501	520	9	6	1	1	100
Woodlawn Hospital[1-3]		H. P. Jenkins	821	1,619	7	4	1	1	150
Little Company of Ma		R. J. Bennett	2,563	.....	91	30	2	2	175
Methodist Hospital[1-3]		E. L. Thompson L. D. Whittaker	4,439	1,426	78	20	3	3	200
Clinic Hospital[1]	ffton, Ind.	H. D. Caylor	.....	.....	..	..	1	2	300
Ball Memorial	uncie, Ind.	W. C. Moore	4,267	.....	86	28	2	2	150
Mercy Hospital	Iowa City	J. W. Dulin	2,152	1,398	45	19	2	2	150
St. Francis Hospital[1-3]	Wichita, Kan.	W. C. Bartlett	2,645	.....	101	44	1	3	...
Good Samaritan Hospital[1-3]	Lexington, Ky.	F. Massie	2,035	.....	37	14	1	1	225
Hotel Dieu, Sisters' Hospital[1]	New Orleans	M. O. Miller	2,429	653	19	7	5	3	200
Central Maine General Hospital[1-3]	Lewiston, Me.	W. V. Cox	2,146	2,487	52	25	1	1	150
Bon Secours Hospital[3]	Baltimore, Md.	G. A. Stewart	1,053	1,174	17	4	1	1	200
Burbank Hospital[1]	Fitchburg, Mass.	F. P. Ross	1,877	2,069	44	16	1	1	250
Lynn Hospital[1-3]	Lynn, Mass.	C. F. Twomey	1,572	13,965	31	12	1	1	...
Quincy City Hospital[1-3]	Quincy, Mass.	J. M. McGowan	1,691	574	50	24	1	3	150
Florence Crittenton Hospital[1]	Detroit	L. R. Leader	2,311	27	16	8	2	3	225
Woman's Hospital[1-3]	Detroit	J. Brown	3,136	74	40	12	1	2	250
Edward W. Sparro	g, Mich.	R. W. Wadley	6,363	.....	..	..	1	3	325
St. Joseph Mercy	Pontiac, Mich.	C. G. Darling	3,223	796	76	24	2	2	...
Asbury Methodist Hospital[1-3]	Minneapolis	R. C. Webb	1,775	.....	14	13	1	1	250
Swedish Hospital[1-3]	Minneapolis	L. Carlson	6,218	.....	65	..	1	1	200
Menorah Hospital Medical Center[1-3]	Kansas City, Mo.	P. H. Halperin	5,014	2,938	23	10	3	6	154.50
St. Mary's Hospital[1-3]	Kansas City, Mo.	F. L. Feierabend	4,912	.....	51	23	2	2	200
Missouri Methodist Hospital[1]	St. Joseph, Mo.	M. E. Grimes	4,299	.....	99	42	1	1	200
St. Anthony's Hospital[1-3]	St. Louis	J. E. VonKaenel	2,369	2,500	71	16	2	2	150
Hackensack Hospital[1-3]	Hackensack, N. J.	A. I. Mader, Jr.	6,793	5,322	81	30	3	3	100
Monmouth Memorial Hospital[1-3]	Long Branch, N. J.	H. A. Kazmann	2,062	862	61	15	2	2	200
Fitkin Memorial Hospital[1-3]	Neptune, N. J.	O. K. Parry	2,595	3,373	89	29	1	1	200
Presbyterian Hospital[1-3]	Newark, N. J.	J. W. Siegel	5,312	2,129	108	31	4	4	125
Mercer Hospital[1-3]	Trenton, N. J.	E. B. Beairsto	1,703	908	52	24	..	2	150
Mary McClellan Hospital[1-3]	Cambridge, N. Y.	D. M. Vickers	944	5,638	40	5	1	1	200
Jewish Memorial Hospital[1-3]	New York City	B. Sherwin S. T. Friedman	2,831	1,301	54	11	1	1	...
Lebanon Hospital[1-3]	New York City	M. Cohen B. S. Sherwin	1,563	.....	52	20	1	1	100
Mother Cabrini Memorial Hospital	New York City	J. P. Alvich	1,255	4,993	32	7	1	2	100
New York Infirmary[1-3]	New York City	A. Hubert	482	745	5	4	1	2	100
Sydenham Hospital[1-3]	ity	S. Standard	1,134	3,040	29	6	2	4	93
James Walker Memorial	C.	....	2,827	.....	38	11	1	1	150
Kate Bitting Reynolds Men	C.	J. M. Walker, Jr.	1,808	4,234	41	15	2	5	200
Bismarck Hospital	Bismarck, N. D.	R. H. Waldschmidt	759	35,500	4	1	2	2	300
St. Luke's Hospital	Fargo, N. D.	V. G. Borland	989	.....	7	1	1	1	200
Deaconess Hospital[1-3]	Cincinnati	R. Good L. Feid	2,928	.....	51	14	2	2	175
Fairview Park Hospital[1-3]	Cleveland	W. E. Smith	1,306	792	20	10	3	3	120
Good Samaritan Hospital[1-3]	Dayton, Ohio	I. Helfert	5,501	221	78	26	1	2	250
St. Elizabeth Hospital[1-3]	Dayton, Ohio	F. H. Miller	7,219	2,165	105	37	1	2	225
Marymount Hospital[1-3]	Garfield Heights, Ohio	C. R. Jablonoski	3,545	.....	22	9	2	2	200
Mercy Hospital[1-3]	Hamilton, Ohio	C. A. Leyrer	2,616	470	56	18	2	2	250
Mansfield General Hospital[1]	Mansfield, Ohio	P. Bein	978	.....	30	4	4	4	200
Wesley Hospital[1]	Oklahoma City	J. H. Robinson	1,550	6,123	15	10	3	3	150
Providence Hospital[1-3]	Portland, Ore.	L. P. Gambee	6,283	.....	62	47	2	2	150
Hazelton State Hospital[1-3]	Hazelton, Pa.	J. P. H. Kettrick	2,454	2,670	73	11	1	4	37.70

Numerical and other references will be found on pages 373 and 374.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Doctors Hospital[1-3]	Philadelphia	J. W. Bransfield	955	.....	18	1	1	1	...
St. Joseph's Hospital[1-3]	Philadelphia	J. A. Lehman							
		F. A. Fiske	1,551	3,772	30	7	1	1	300
St. Mary's	Philadelphia	P. A. McCarthy	3,000	8,679	42	16	1	1	...
Columbia		W. B. Hetzel	2,325	4,335	29	15	1	2	200
Mercy Hos		S. A. Jonas	1,833	1,248	12	4	1	1	300
Newell Hospital[3]	Chattanooga, Tenn.	E. T. Newell	1,649	20,715	49	14	3	3	400
Brackenridge Hospital[1]	Austin, Texas	R. O. Swearingen	1,568	1,813	35	16	..	1	250
Harris Hospital[1-3]	Fort Worth, Texas	R. G. Lemon	4,278	293	71	28	4	4	125
Southern Pacific Hospital[3]	Houston, Texas	J. R. Gandy	435	6,069	12	4	1	2	200
Thomas D. Dee Memorial Hospital[1-3]	Ogden, Utah	C. M. Swindler	1,490	1,252	27	18	2	2	250
Bishop DeGoesbriand Hospital[1-3]	Burlington, Vt.	A. A. Gladstone	840	388	12	8	1	1	50
Mary Immaculate Hospital[1-3]	Newport News, Va.	A. A. Creecy	732	.....	4	1	1	5	150
Riverside Hospital[1-3]	Newport News, Va.	E. V. Siegel	3,643	.....	28	5	1	2	225
De Paul Hospital[1-3]	Norfolk, Va.	W. B. Hoover	4,374	2,219	101	37	2	4	225
St. Elizabeth's Hospital[1-3]	Richmond, Va.	G. W. Horsley	1,035	5,693	16	9	1	2	100
Doctors Hospital[3]	Seattle, Wash.	D. K. Crystal	4,386	.....	34	23	2	2	125
Providence Hospital[1-3]	Seattle, Wash.	J. DePree	2,238	314	24	16	3	3	200
St. Luke's Hospital[1-3]	Spokane, Wash.	E. Schnug	3,023	.....	74	39	1	1	150
Memorial Hospital[1-3]	Charleston, W. Va.	B. Bradford, Jr.	1,830	1,390	15	7	2	2	240
Mercy Hospital[1-3]	Janesville, Wis.	T. J. Snodgrass	2,561	1,389	9	5	1	1	200
La Crosse Lutheran Hospital[1-3]	La Crosse, Wis.	S. B. Gundersen	1,501	.....	19	10	1	1	300
Methodist Hospital[1-3]	Madison, Wis.	A. S. Jackson	1,644	.....	2	2	1	1	...
Evangelical Deaconess Hospital[1-3]	Milwaukee	K. Schlaepfer	4,274	.....	20	8	1	1	250
St. Luke's Hospital[1-3]	Milwaukee	J. Adamkiewicz	4,381	.....	32	13	2	2	275

27. THORACIC SURGERY

The following services have been approved by the Council on Medical Education and Hospitals without specifying the number of years for which they are accredited.

Hospitals, 58; Assistant Residencies and Residencies, 141

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
UNITED STATES ARMY									
Fitzsimons Army Hospital[66]	Denver, Colo.	J. H. Forsee	491	450	11	11	2	4	...
Army Medical Center[1-66-67]	Washington, D. C.	S. W. French	136	62	4	4	..	2	...
UNITED STATES NAVY									
U. S. Naval Hospital[1]	St. Albans, N. Y.	R. N. Grant	151	.....	1	1	..	1	...
VETERANS ADMINISTRATION									
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	J. A. Weinberg	81	78	14	10	..	2	...
Veterans Admin. Center[1-3]	Los Angeles	F. X. Byron	256	347	30	25	2	2	...
Veterans Admin. Hospital[1]	Hines, Ill.	H. T. Langston	461	362	49	24	4	4	...
Veterans Admin. Hospital[1-3]	Minneapolis	T. J. Kinsella	110	113	13	10	..	..	...
Veterans Admin. Hospital[1-3]	Jefferson Bks., Mo.	T. Burford	282	.....	32	20	1	2	...
Veterans Admin. Hospital[1-3]	Brooklyn, N. Y.	R. Friedlander	119	150	12	8	2	3	...
Veterans Admin. Hospital[1-3]	Castle Point, N. Y.	L. H. Vaughan	299	.....	..	..	..	2	...
Veterans Admin. Hospital[1-3]	New York City (Bronx)	F. B. Berry	142	234	7	3	2	3	...
Veterans Admin. Hospital[1-3]	Oteen, N. C.	J. D. Murphy	1,097	240	33	19	..	2	...
Veterans Admin. Hospital[1-3]	Cleveland	H. J. Mendelsohn	149	173	16	8	1	2	...
Veterans Admin. Hospital[1-3]	Memphis, Tenn.	F. A. Hughes	454	.....	30	26	2	3	...
Veterans Admin. Hospital[1]	McKinney, Texas	J. Carswell, Jr.	321	.....	16	13	1	2	...
Veterans Admin. Hospital[1]	Richmond, Va.	F. P. Coleman	230	104	18	13	2	4	...
Veterans Admin. Center[1-3]	Martinsburg, W. Va.	R. K. Hollingsworth	220	98	9	8	1	1	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
City of Hope[1-3]	Duarte, Calif.	A. Goldman	226	.....	3	..	3	4	300
Highland-Alameda County Hospital[1-3]	Oakland, Calif.	P. Samson	276	631	17	6	1	2	...
Harbor General Hospital[1-3]	Torrance, Calif.	F. X. Byron	156	7,072	25	13	1	2	190
National Jewish Hospital[1-3]	Denver	J. B. Grow	.....	.....	..	..	2	2	200
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	G. E. Lindskog	320	279	21	11	1	2	50
Norwich State Tuberculosis Sanitarium (Uncas on Thames)[1-3]	Norwich, Conn.	W. O. Kelley	433	.....	..	..	1	1	260
University Hospital[78]	Augusta, Ga.	R. Ellison	213	.....	5	2	..	1	160
Children's Memorial Hospital[1-3]	Chicago	W. J. Potts	186	.....	20	19	..	1	75
City of Chicago Municipal Tuberculosis Sanitarium[1-3]	Chicago	M. W. Lees	3,342	895	18	13	..	5	175
University Hospital[1-3]	Baltimore	O. C. Brantigan	.....	.....	..	..	..	2	50
Boston Sanatorium[1-3]	Boston	J. W. Strieder	152	.....	8	4	..	3	230
University Hospital[1-3]	Ann Arbor, Mich.	J. Alexander	717	1,908	45	27	5	11	164.16
Herman Kiefer Hospital[1-3]	Detroit	E. J. O'Brien	1,452	.....	9	4	4	7	456
Ingham Sanatorium[3]	Lansing, Mich.	C. J. Stringer	307	28,820	4	2	1	2	500
Barnes Hospital[1-3]	St. Louis	T. Burford	695	.....	32	18	..	5	50
Berthold S. Pollack Hospital for Chest Diseases	Jersey City, N. J.	F. Bortone	1,922	.....	..	..	2	2	...
Kings County Hospital[1-3]	Brooklyn, N. Y.	E. Mannix	135	132	12	7	1	2	150
Edward J. Meyer Memorial Hospital[1]	Buffalo, N. Y.	J. D. Stewart	198	267	29	15	1	2	179
Triboro Hospital[1-3]	Jamaica, N. Y.	L. Miscall	199	4,095	10	4	4	4	150
Bellevue Hospital Center Division I—Columbia University[1-3]	New York City	F. B. Berry	271	12,833	25	9	1	3	98
Metropolitan Hospital[1-3]	New York City	S. A. Thompson	108	.....	7	3	1	2	98
St. Joseph's Hospital for Chest Diseases	New York City	C. Roessel	14	.....	..	..	..	..	...
Seton Hospital[1-3]	New York City	M. Rubin	151	465	..	..	3	3	150
Homer Folks Tuberculosis Hospital[1-3]	Oneonta, N. Y.	A. M. Skinner	150	29	1	1	1	2	400

Numerical and other references will be found on pages 373 and 374.

27. THORACIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Ray Brook State Tuberculosis Hospital [1-3]	Ray Brook, N. Y.	J. Gordon	184	34	..	..	1	1	400
Sea View Hospital [1-3]	Staten Island, N. Y.	L. R. Davidson	252	486	9	4	3	3	150
Duke Hospital [1-3]	Durham, N. C.	W. C. Sealy	442	328	23	10	..	..	25
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	H. H. Bradshaw	199	42	10	9	1	3	41.66
City Hospital [1-3]	Cleveland	S. O. Freedlander	51	627	16	7	..	..	130
Benjamin Franklin Hospital [1-239]	Columbus, Ohio	M. G. Buckles	251	406	5	3	2	2	300
University Hospitals									
Ohio Tuberculosis Hospital [1-3-244]	Columbus, Ohio	N. C. Andrews	91	.....	1	1	..	2	380
University Hospital [1-3]	Columbus, Ohio	K. P. Klassen	650	572	21	18	..	3	150
University of Oregon Medical School Hospitals and Clinics [1]	Portland, Ore	W. S. Conklin	206	7,112	4	1	1	2	85
Episcopal Hospital [1]	Philadelphia	R. P. Glover	108	.....	11	5	1	2	100
Hahnemann Hospital [1-3-139]	Philadelphia	C. P. Bailey	1,004	219	87	53	3	5	50
Philadelphia General Hospital [1-3]	Philadelphia	E. Mendelssohn	.....	.....	..	..	2	2	112.34
Baptist Memorial Hospital [1-3]	Memphis, Tenn.	P. M. Carr	425	79	16	10	1	2	100
Baylor University Hospital [1-3]	Dallas, Texas	R. Shaw	579	168	23	10	2	2	75
Firland Sanatorium [1-3]	Seattle, Wash.	F. J. Jarvis	269	.....	7	3	1	1	200
Muirdale Sanatorium [1]	Milwaukee	J. D. Steele	262	.....	..	..	..	1	309
Leahi Hospital [1-3]	Honolulu, T. H.	P. W. Gebauer	959	341	3	1	1	1	...

28. UROLOGY

The following services have been approved by the Council and the American Board of Urology.
Hospitals, 222; Assistant Residencies and Residencies, 599

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY										
Letterman Army Hospital [66]	San Francisco	J. W. Schwartz	340	2,211	4	4	..	..	2	...
Fitzsimons Army Hospital [1-66]	Denver, Colo.	J. F. Patton	189	1,299	1	1	..	..	2	...
Army Medical Center [1-66-67]		J. C. Kimbrough	562	5,389	1	1	2	6	3	...
Brooke Army Medical Center [6]		C. C. Dodson	1,025	5,163	7	7	..	..	3	...
Tripler Army Hospital [66]	Honolulu, T. H.	L. K. Mantell	1,149	3,512	1	1	..	..	3	...
UNITED STATES NAVY										
U. S. Naval Hospital [1]	Oakland, Calif.	J. W. Rogers	1,094	1,830	8	6	..	2	3	...
U. S. Naval Hospital	San Diego	J. R. Dillon, Jr.	1,041	5,080	9	7	..	3	3	...
U. S. Naval Hospital [1]	Bethesda, Md.	A. C. Abernethy	740	9,742	2	2	..	3	3	...
U. S. Naval Hospital [1]	St. Albans, N. Y.	J. F. Richardson	533	654	1	1	..	2	3	...
U. S. Naval Hospital [1]	Philadelphia	J. T. Cangelosi	823	2,737	24	9	..	2	3	...
UNITED STATES PUBLIC HEALTH SERVICE										
U. S. Public Health Service Hospital [1-3]	Stapleton, N. Y.	C. Ferguson	899	5,006	12	10	1	3	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE										
Freedmen's Hospital [1-3]	Washington, D. C.	R. F. Jones	254	1,939	14	8	..	1	3	...
VETERANS ADMINISTRATION										
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	E. Bors	291	2,064	10	8	3	8	3	...
Veterans Admin. Center [1-3]	Los Angeles	W. Goodwin	925	1,535	25	14	2	6	3	...
Veterans Admin. Hospital [1]	San Francisco	F. Hinman H. W. Weyrauch	345	400	8	4	1	3	3	...
Veterans Admin. Hospital [1-248]	Newington, Conn.	G. R. Read	231	400	4	3	1	2	2	...
Veterans Admin. Hospital [1-3]	Washington, D. C.	J. G. Lee	215	568	6	3	1	1	3	...
Veterans Admin. Hospital [1-2-76]	Atlanta, Ga.	G. D. Cowart	478	...	10	7	1	2	3	...
Veterans Admin. Hospital [1]	Hines, Ill.	F. A. Lloyd	1,595	952	47	29	4	7	3	...
Veterans Admin. Hospital [1]	Des Moines, Iowa	C. Losh, Jr.	716	310	14	10	1	3	2	...
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	I. S. Brown	71	218	11	4	1	3	3	...
Veterans Admin. Hospital [1-3]	Louisville, Ky.	M. I. Schwalbe	289	331	8	5	1	2	2	...
Veterans Admin. Hospital [1-116]	New Orleans, La.	E. Burns	297	602	5	3	..	2	3	...
Veterans Admin. Hospital [1-3]	Ft. Howard, Md.	H. J. Meisel	222	92	10	8	..	1	3	...
Veterans Admin. Hospital [1-3-134]	Boston (Jamaica Plain)	S. Vose	544	1,862	17	16	1	2	3	...
Veterans Admin. Hospital [1-3-132]	Boston (West Roxbury), Mass.	H. S. Talbot	...	...	..	..	..	..	3	...
Veterans Admin. Hospital [1-3]	Minneapolis	C. D. Creevy	510	677	14	14	..	8	3	...
Veterans Admin. Hospital [1-3]	Jefferson Bks., Mo.	J. P. Altheide	510	...	18	13	1	3	3	...
Veterans Admin. Hospital [1-3]	Lincoln, Neb.	A. D. Munger	191	250	3	1	1	2	3	...
Veterans Admin. Hospital [1-3-178]	Brooklyn, N. Y.	F. C. Hamm	662	801	22	13	1	3	3	...
Veterans Admin. Hospital [1-3]	Buffalo, N. Y.	J. D. MacCallum	430	...	16	7	..	2	3	...
Veterans Admin. Hospital [1-3]	New York City	A. L. Dean	1,007	2,607	51	29	2	4	3	...
Veterans Admin. Hospital [1-3]	Cleveland	J. J. Joelson	592	535	30	22	1	8	3	...
Veterans Admin. Hospital [1-3]	Dayton, Ohio	H. I. Berman	459	2,706	20	15	1	3	3	...
Veterans Admin. Hospital [1-3-252]	Portland, Ore.	D. P. Paull	436	...	10	5	..	1	1	...
Veterans Admin. Hospital [1]	Aspinwall, Pa.	C. A. Kuehn	360	...	17	15	1	3	3	...
Veterans Admin. Hospital [3]	Columbia, S. C.	B. S. Chappell	668	471	11	5	1	3	3	...
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	S. L. Raines	626	771	..	..	1	3	3	...
Veterans Admin. Hospital [1-3-270-271]	Dallas, Texas	R. C. Smith	242	...	8	7	1	2	3	...
Veterans Admin. Hospital [1-3]	Houston, Texas	J. R. Blundell	377	578	16	12	1	2	3	...
Veterans Admin. Hospital [1]	McKinney, Texas	P. A. Duff	440	2,500	11	8	..	1	3	...
Veterans Admin. Hospital [1-171]	White River Jct., Vt.	W. L. McLaughlin	651	1,186	1	1	1	3	3	...
Veterans Admin. Hospital [1]	Richmond, Va.	R. C. Bunts	1,345	662	14	10	1	4	3	...
Veterans Admin. Hospital [1]	Milwaukee	J. C. Sargent	1,186	1,224	15	9	3	3	3	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Carraway Methodist Hospital [1-3]	Birmingham, Ala.	L. Timberlake H. Hudson	421	...	8	6	1	2	3	150
Jefferson-Hillman Hospitals [1-3]	Birmingham, Ala.	B. Barelare	479	4,874	24	..	1	3	3	...
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	E. B. Pitts	198	2,781	1	..	1	1	1	225
University Hospital [1]	Little Rock, Ark.	J. Headstream	180	2,621	4	2	..	..	3	120

Numerical and other references will be found on pages 373 and 374.

28. UROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Los Angeles County Hospital[1]	Los Angeles	J. J. Crane	2,581	15,083	234	58	..	7	3	190
Presbyterian Hospital-Olmsted Memorial[1-3]	Los Angeles	T. O. Powell	885	423	11	6	..	1	2	175
White Memorial Hospital[1-3]	Los Angeles	R. W. Barnes	576	5,416	12	7	1	3	3	146.25
San Diego County General Hospital[1-3]	San Diego	R. B. Mullenix	303	2,472	22	10	1	3	3	150
Franklin Hospital[1-3]	San Francisco	J. Schulte	509	508	11	6	1	2	3	125
Southern Pacific General Hospital[1-3]	San Francisco	T. E. Gibson	529	3,875	5	4	1	3	3	150
Stanford University Hospitals[1-3]	San Francisco	H. M. Weyrauch	550	2,792	1	..	1	3	3	50
University of California Hospital[1-3-36]	San Francisco	F. Hinman D. R. Smith	411	5,030	3	1	..	1	3	87
Santa Clara County Hospital[1]	San Jose, Calif.	E. E. Henderson	232	2,265	6	5	..	1	2	260
Harbor General Hospital[1-3-32]	Torrance, Calif.	E. Belt	428	1,500	34	13	1	3	3	190
University of Colorado Medical Center		....	...	...	..	..	1	3	..	150
Colorado General Hospital[1-3]	Denver, Colo.	D. R. Higbee	225	2,344	14	10	..	..	3	...
Denver General Hospital[1-3-22]	Denver, Colo.	D. E. Newland	249	955	11	4	..	..	3	...
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	C. L. Deming	720	1,831	16	7	1	2	3	50
Hospital of St. Raphael[3]	New Haven, Conn.	L. Maurer	472	296	4	..	1	1	3	100
Waterbury Hospital[1]	Waterbury, Conn.	H. J. Stettbacher	556	202	12	7	1	2	2	125
Delaware Hospital[1-3]	Wilmington, Del.	B. S. Vallett	470	2,844	15	7	1	3	3	180
Gallinger Municipal Hospital[1-3]	Washington, D. C.	L. Lewis L. Culbertson	410	2,114	25	13	1	3	3	...
Duval Medical Center[1-3]	Jacksonville, Fla.	R. B. McIver	331	2,145	27	18	..	1	2	175
St. Vincent's Hospital[1-3]	Jacksonville, Fla.	R. McIver	532	...	8	5	1	2	2	135
Jackson Memorial Hospital[1]	Miami, Fla.	W. L. Fitzgerald	959	3,569	27	15	1	3	3	75
Orange Memorial Hospital[1-3]	Orlando, Fla.	L. M. Orr	1,007	344	22	16	1	3	3	125
Grady Memorial Hospital[1-3]	Atlanta, Ga.	M. K. Bailey	650	6,964	25	5	2	6	3	20
University Hospital	Augusta, Ga.	J. R. Rinker	516	...	18	6	1	3	3	160
Alexian Brothers Hospital[3]	Chicago	E. E. Hess	443	...	2	1	1	1	1	125
Cook County Hospital[1-3]	Chicago	W. J. Baker	1,101	2,973	102	12	4	4	3	50
Mercy Hospital[1-3]	Chicago	H. E. Landes	548	1,988	11	5	1	2	3	100
Michael Reese Hospital[1-3]	Chicago	I. Shapiro	878	1,789	16	9	1	3	3	50
Mount Sinai Hospital[1-3]	Chicago	J. M. Glasser	384	1,046	20	9	1	1	2	100
Presbyterian Hospital[1-3]	Chicago	N. J. Heckel	641	3,651	8	6	1	2	3	125
Provident Hospital[1-3]	Chicago	W. S. Grant	173	1,762	8	1	1	2	2	200
St. Luke's Hospital[1-3]	Chicago	T. P. Grauer	699	1,448	19	11	1	3	3	50
University of Chicago Clinics[1-3]	Chicago	C. B. Huggins	390	4,070	31	16	1	3	3	175
Wesley Memorial Hospital[1-3]	Chicago	V. J. O'Connor	867	3,235	8	4	1	1	3	50
Decatur and Macon County Hospital[1]	Decatur, Ill.	A. C. Simon	506	...	4	..	2	2	..	150
Evanston Hospital[1-3]	Evanston, Ill.	J. Farrell	228	287	6	..	1	1	1	50
St. Francis Hospital[1-3]	Evanston, Ill.	B. E. Fillis	535	201	10	4	1	1	1	150
St. Francis Hospital[1-3]	Peoria, Ill.	H. J. Ireland	1,122	433	17	3	..	2	3	...
Indianapolis General Hospital[1]	Indianapolis	W. N. Wishard	331	2,421	27	10	1	2	3	150
Indiana University Medical Center[1-103]	Indianapolis	R. A. Garrett	709	2,316	22	16	1	3	3	150
Methodist Hospital[1-3]	Indianapolis	J. M. Young	1,739	...	27	9	1	2	2	...
University Hospitals[1-3]	Iowa City, Iowa	R. H. Flocks	1,680	1,839	64	40	3	7	3	75
University of Kansas Medical Center[1-3]	Kansas City, Kan.	W. Valk	771	3,838	31	19	..	6	3	125
St. Joseph Hospital[1-3]	Lexington, Ky.	E. H. Ray	675	230	14	4	1	1	1	140
Louisville General Hospital[1-3]	Louisville, Ky.	R. Lich, Jr.	232	4,863	11	2	..	3	3	100
Charity Hospital of Louisiana										
Independent Unit[1-3]	New Orleans	M. Wolfe	737	5,437	13	5	1	3	3	40
Louisiana State University Unit[1-3]	New Orleans	P. O. Kahle	924	8,595	29	10	2	6	3	40
Tulane University Unit[1-3]	New Orleans	E. Burns	863	7,470	34	21	2	6	3	40
Ochsner Foundation Hospital[1-3]	New Orleans	E. Burns	341	10,848	5	4	2	4	3	150
Confederate Memorial Medical Center[1]	Shreveport, La.	R. K. Womack	590	3,139	14	8	1	3	3	60
Johns Hopkins Hospital[1-3-104]	Baltimore	W. W. Scott	1,091	4,618	27	21	..	4	3	...
Sinai Hospital[1-3]	Baltimore	B. S. Abeshouse	506	288	22	11	1	3	3	85
University Hospital[1-3]	Baltimore	W. H. Toulson	392	2,058	21	8	..	..	3	...
Beth Israel Hospital[1-3]	Boston	G. Prateer	400	1,895	7	3	..	1	2	100
Boston City Hospital[1-3]	Boston	F. G. Sheddan, Jr.	425	7,151	18	5	..	4	3	162
Lahey Clinic[1-3]	Boston	E. E. Ewert	1,027	8,491	8	5	3	6	3	150
Massachusetts General Hospital[1-3]	Boston	F. H. Colby	1,103	4,062	22	13	..	1	3	100
Massachusetts Memorial Hospitals[1-3-145]	Boston	S. N. Vose	428	1,246	6	2	2	3	3	50
New England Center Hospital[1-3]	Boston	W. F. Leadbetter	350	...	12	9	..	3	3	75
Peter Bent Brigham Hospital[1-3]	Boston	J. H. Harrison	...	...	..	..	..	..	1	42
Mount Auburn Hospital[1-3]	Cambridge, Mass.	....	243	120	8	4	..	1	1	115
Salem Hospital[1-3]	Salem, Mass.	E. L. Peirson	514	249	8	2	1	1	1	125
University Hospital[1-3]	Ann Arbor, Mich.	R. M. Nesbit	1,216	4,332	28	19	2	6	3	164.16
City of Detroit Receiving Hospital[1-3]	Detroit	D. Jaffar	...	3,333	..	..	2	3	3	254
Grace Hospital[1-3]	Detroit	L. W. Hull	1,213	...	15	8	1	2	3	225
Harper Hospital[1-3]	Detroit	G. Sewell	1,529	989	27	15	1	3	3	225
Henry Ford Hospital[1-3]	Detroit	A. W. Bohne	893	12,056	10	4	2	6	3	225
Wayne County General Hospital and Infirmary[1-3]	Eloise, Mich.	W. L. Sherman	461	781	69	27	1	3	3	278.33
Blodgett Memorial Hospital[1-3-146]	Grand Rapids, Mich.	J. A. Ryan	450	...	6	5	1	2	2	200
Minneapolis General Hospital[1-3]	Minneapolis	T. H. Sweetser	301	1,972	13	11	..	1	3	169
St. Mary's Hospital[1-3]	Minneapolis	....	736	312	12	8	1	1	3	200
University of Minnesota Hospitals[1-3]	Minneapolis	C. D. Creevy	868	2,957	18	15	1	3	3	150
Mayo Foundation[1-3]	Rochester, Minn.	G. Thompson	2,902	13,142	26	18	5	15	3	150
Ancker Hospital[1-3]	St. Paul, Minn.	F. E. B. Foley	364	1,773	23	11	1	3	3	...
Charles T. Miller Hospital[1-3-167]	St. Paul, Minn.	F. E. B. Foley	493	468	5	2	1	1	3	150
Kansas City General Hospital No. 1	Kansas City, Mo.	A. L. Stockwell	430	2,516	18	14	1	3	3	75
Research Hospital[1-3]	Kansas City, Mo.	R. L. Hoffman	455	...	6	5	1	1	3	150
Barnes Hospital[1-3]	St. Louis	J. Cordonnier	921	5,187	16	9	1	3	3	50
Homer G. Phillips Hospital[1-3]	St. Louis	M. Abrams	455	1,721	74	5	2	4	3	215
Missouri Baptist Hospital[1-3]	St. Louis	C. E. Burford	894	...	20	2	1	1	1	...
Missouri Pacific Hospital[3]	St. Louis	A. E. Vitt	817	1,533	..	..	1	2	2	200
St. Louis City Hospital[1-3]	St. Louis	C. Wattenberg	399	2,360	55	21	1	3	3	137.75
St. Mary's Group of Hospitals[1-3-163]	St. Louis	C. E. Burford	726	2,313	13	6	1	3	3	65
Atlantic City Hospital[1]	Atlantic City, N. J.	C. H. deT. Shivers	362	3,215	..	..	..	1	2	150
Bayonne Hospital & Dispensary[3]	Bayonne, N. J.	A. J. Balsamo	646	602	10	4	..	2	3	...
Cooper Hospital[1-3]	Camden, N. J.	R. R. Betancourt	630	1,895	23	6	1	2	2	200
Medical Center—Jersey City Hospital[1-3]	Jersey City, N. J.	E. J. Daly	652	3,435	20	5	1	3	3	100
Newark City Hospital[1-3]	Newark, N. J.	E. Seidman	411	...	58	8	2	4	3	115
Orange Memorial Hospital[1-3]	Orange, N. J.	W. P. Burpeau J. K. deVries	585	720	20	10	1	1	2	120
Albany Hospital[1-3]	Albany, N. Y.	J. E. Heslin	891	941	22	11	1	2	3	135

Numerical and other references will be found on pages 373 and 374.

28. UROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths on Service	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Jewish Hospital [1-3]	Brooklyn	L. Baretz	695	1,680	16	8	1	2	2	75
Kings County Hospital [1-3]	Brooklyn	G. Horton	1,076	2,589	100	18	2	5	3	93
Long Island College Hospital [1-3]	Brooklyn	F. L. Senger	713	1,799	27	3	1	3	3	75
Maimonides Hospital [1-3]	Brooklyn	F. Senger	834	1,112	15	3	..	2	3	75
Methodist Hospital [1-3]	Brooklyn	Q. P. Schoenemann	641	799	8	4	..	1	3	75
Buffalo General Hospital [1-3]	Buffalo	O. J. Oberkircher	762	956	16	7	..	2	3	125
Edward J. Meyer Memorial Hospital [1]	Buffalo	G. E. Slotkin	417	1,401	21	7	1	3	3	179
Millard Fillmore Hospital [1-3]	Buffalo	G. E. Slotkin	758	31	25	7	1	3	3	235
Queens General Hospital [1-3]	Jamaica, N. Y.	E. Rubin	388	2,684	40	18	1	3	3	98.33
Bellevue Hospital Center										
Division II—Cornell University [1-3]	New York City	J. W. Draper	676	4,368	27	2	1	4	3	93.60
Division IV—New York University Post-Graduate Medical School [1-3]	New York City	R. S. Hotchkiss	452	7,558	42	8	2	5	3	93
Beth Israel Hospital [1-3]	New York City	S. F. Wilhelm	830	1,329	12	4	1	3	3	75
Francis Delafield Hospital [1-3]	New York City	G. F. Cahill	365	616	31	20	1	7	3	98
French Hospital [1-3-198]	New York City	J. D. Cooney	443	1,670	10	5	1	3	3	50
Lincoln Hospital [1-3]	New York City	F. P. Twinem	...	1,854	..	..	1	3	3	65
Metropolitan Hospital [1-3]	New York City	T. J. Kirwin	551	2,422	28	4	1	2	2	98
Morrisania City Hospital [1-3]	New York City	J. Duff	745	3,036	22	9	1	4	3	98
Mount Sinai Hosptal [1-3]	New York City	G. Openheimer	1,006	3,268	20	12	1	3	3	...
New York City Hospital [1-3]	New York City	G. A. Fiedler	422	1,954	21	4	2	3	2	150
New York Hospital [1-3]	New York City	V. Marshall	1,379	11,940	..	..	5	7	3	25
New York Polyclinic Medical School and Hospital [1-3]	New York City	J. S. Ritter	662	2,995	14	4	1	3	3	...
New York University-Bellevue Medical Center		(See Bellevue Hospital Center, Div. IV)								
University Hospital [1-3]	New York City	R. S. Hotchkiss	452	7,558	42	8	2	5	..	98
Presbyterian Hospital [1-3]	New York City	G. F. Cahill	1,556	9,219	29	7	2	6	3	208.33
Roosevelt Hospital [1-3-209]	New York City	S. A. Beisler	603	3,997	10	3	1	3	3	116
St. Clare's Hospital [1]	New York City	G. A. Fiedler	542	526	15	2	1	3	3	50
St. Luke's Hospital [1-3]	New York City	J. A. Taylor	545	3,653	24	8	1	3	3	60
Strong Memorial-Rochester Municipal Hospitals [1-3]	Rochester, N. Y.	W. W. Scott	806	2,508	..	..	1	3	3	41.66
Sea View Hospital [1-3]	Staten Island, N. Y.	A. J. Greenberger	769	...	1	1	1	1	1	150
Charlotte Memorial Hospital	Charlotte, N. C.	H. W. McKay	1,307	279	19	13	1	3	3	150
Duke Hospital [1-3]	Durham, N. C.	E. P. Alyea	619	6,402	9	3	..	6	3	25
Watts Hospital [1]	Durham, N. C.	W. M. Coppridge	619	111	7	3	1	3	2	150
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	F. K. Garvey	536	1,735	7	1	1	3	3	41.66
City Hospital [1-3]	Akron, Ohio	W. Keltzer	832	447	27	11	1	3	3	250
Cincinnati General Hospital [1-3]	Cincinnati	T. B. Wayman	724	3,792	42	22	1	1	2	...
City Hospital [1-3]	Cleveland	H. Trattner	296	3,052	22	11	..	..	3	100
Cleveland Clinic Hospital [1-3]	Cleveland	C. C. Higgins	1,134	17,492	23	13	3	9	3	175
University Hospitals [1-3]	Cleveland	J. J. Joelson	835	2,672	10	6	1	2	2	62.50
University Hospitals										
University Hospital [1-3-238-241]	Columbus, Ohio	W. N. Taylor	712	2,060	25	14	1	5	3	150
Huron Road Hospital [1-3]	East Cleveland, Ohio	V. C. Laughlin	533	231	16	5	1	2	3	210
St. Vincent's Hospital [1-3]	Toledo, Ohio	E. A. *Ockuly*	1,041	...	21	12	1	3	3	225
University Hospitals [1-3]	Oklahoma City	B. A. Hayes	286	3,850	16	4	1	2	3	50
Hillcrest Medical Center [1]	Tulsa, Okla.	...	...	...	..	..	1	1	3	150
St. John's Hospital [1]	Tulsa, Okla.	B. H. Blocksom	909	...	17	7	1	3	3	150
St. Vincent's Hospital [1]	Portland, Ore.	T. R. Montgomery	954	196	15	9	1	1	2	165
University of Oregon Medical School Hospitals and Clinics [1-253]	Portland, Ore.	C. Hodges	421	3,547	17	12	1	4	3	85
Allentown Hospital [1-3]	Allentown, Pa.	W. C. Masonheimer	828	264	20	7	..	1	2	225
George F. Geisinger Memorial Hospital [1-3]	Danville, Pa.	W. I. Buchert	1,079	8,732	20	8	..	3	3	100
St. Vincent's Hospital [1-3]	Erie, Pa.	E. Hess	848	5,360	19	10	1	4	3	100
Harrisburg Hospital [1-3]	Harrisburg, Pa.	R. E. Allyn	590	1,633	22	3	1	1	3	200
Albert Einstein Medical Center										
Southern Division [1-3]	Philadelphia	M. Muschat I. J. Carp	483	447	6	3	1	1	2	75
Episcopal Hospital [1]	Philadelphia	G. D. Shoup	361	843	12	6	1	2	2	100
Germantown Dispensary and Hospital [1-3]	Philadelphia	F. P. Massaniso	394	517	7	3	1	3	1	150
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	C. A. W. Uhle	260	3,011	7	2	1	1	2	...
Hahnemann Medical College and Hospital [1-3]	Philadelphia	E. W. Campbell	986	2,602	16	9	1	3	3	50
Hospital of the University of Pennsylvania [1-3]	Philadelphia	P. B. Hughes	652	2,936	7	2	1	4	3	125
Jefferson Medical College Hospital [1-3]	Philadelphia	T. R. Fetter	1,051	4,646	32	14	..	..	3	25
Lankenau Hospital [1-3]	Philadelphia	C. A. W. Uhle	350	1,107	7	5	..	1	2	100
Pennsylvania Hospital [1-3]	Philadelphia	T. R. Fetter	545	1,867	8	3	..	2	3	20
Philadelphia General Hospital [1-3]	Philadelphia	S. Keesal	409	3,469	35	13	2	6	3	112.34
Presbyterian Hospital [1-3-21]	Philadelphia	F. G. Harrison	372	2,692	14	6	..	..	3	100
Temple University Hospital [1-3]	Philadelphia	K. B. Conger	609	1,844	19	10	1	2	3	50
Allegheny General Hospital [1-3]	Pittsburgh	J. L. Hamilton	522	1,383	15	3	..	2	3	150
Mercy Hospital [1-3]	Pittsburgh	E. J. McCague	511	682	10	3	1	3	3	150
Pittsburgh Medical Center [1-201]	Pittsburgh	J. J. Lee	486	...	9	3	1	3	3	60
Robert Packer Hospital [1-3]	Sayre, Pa.	A. B. King	429	970	25	17	1	1	3	100
Mercy Hospital [1]	Wilkes-Barre, Pa.	P. P. Mayock	302	1,338	6	3	1	1	1	300
Wilkes-Barre General Hospital [1]	Wilkes-Barre, Pa.	W. J. Daw	704	270	20	7	1	2	2	225
Rhode Island Hospital [1-3]	Providence, R. I.	H. K. Turner	837	1,748	36	15	1	2	2	60
Roper Hospital [1-3]	Charleston, S. C.	J. J. Ravenel	778	3,359	15	6	1	3	3	83
Orangeburg Regional Hospital [3]	Orangeburg, S. C.	L. P. Thackston	2,047	10,999	13	11	1	3	3	150
Baptist Memorial Hospital [1-3]	Memphis	H. G. Bryan	1,252	472	23	3	..	1	1	100
City of Memphis Hospitals [1-3]	Memphis	T. D. Moore	693	...	36	14	3	6	3	85
St. Joseph Hospital [1-3]	Memphis	C. D. Allen	611	267	23	6	1	3	3	...
Nashville General Hospital [1-3]	Nashville, Tenn.	O. E. Haines, *Jr.*	388	1,819	11	6	..	1	2	50
Parkland Hospital [1-3]	Dallas, Texas	H. Spence	356	281	18	6	1	2	3	50
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	R. E. Cone	390	5,243	7	5	1	2	3	...
Hermann Hospital [1-3]	Houston, Texas	C. M. Crigler	1,581	1,252	28	18	2	4	3	100
Jefferson Davis Hospital [1]	Houston, Texas	R. Blundell	470	6,720	19	2	..	2	3	50
St. Joseph's Infirmary [3]	Houston, Texas	M. K. O'Heeron	762	...	15	5	1	1	1	100
Wichita Falls Clinic Hospital	Wichita Falls, Texas	J. R. Reagan	474	10,332	7	1	1	1	3	...
Mary Fletcher Hospital [1-3-285]	Burlington, Vt.	W. M. Flagg	399	622	8	7	1	4	3	100
University of Virginia Hospital [1-3]	Charlottesville, Va.	S. A. Vest	748	2,950	23	9	1	4	3	50
Medical College of Virginia—Hospital Division [1-3-201]	Richmond, Va.	A. I. Dodson	896	2,694	28	3	1	3	3	50
St. Mary's Hospital [1-3]	Huntington, W. Va.	I. R. Harwood	782	...	22	6	1	1	2	115
La Crosse Lutheran Hospital [1-3]	La Crosse, Wis.	A. H. Gundersen	462	600	25	13	..	..	1	...
Madison General Hospital [1-3]	Madison, Wis.	I. R. Sisk	705	...	12	8	..	1	2	150
University Hospitals [1-3]	Madison, Wis.	J. B. Wear	490	...	12	8	1	3	3	50
Milwaukee County Hospital [1-3]	Milwaukee	R. S. Irwin	715	2,252	49	19	1	3	2	208.92

Numerical and other references will be found on pages 373 and 374.

Numerical and Other References

1. Appointments available to women applicants.
2. Approved for training in syphilology only.
3. Appointments available to graduates of foreign medical schools. Details regarding requirements for appointment can be secured from the hospitals concerned.
4. Approved as offering acceptable affiliated training (maximum three months) in concurrence with the American Board of Pediatrics.
5. Maximum of six months' training in contagious diseases accepted by the American Board of Pediatrics.
6. May include training in allergy.
7. May include fellowship training in cardiology.
8. Includes fellowships.
9. May include one year of fellowship in Division of Endocrinology.
10. Includes one year fellowship in immuno-Hematology.
11. May include training "Home Care" Service.
12. May include one year in the Medical Research Institute (and Postgraduate School).
13. Includes one year fellowships available in psychosomatic medicine.
14. May include one year fellowship in the Department of Oncology.
15. Additional year of training including pathology, University of Chicago Clinics, available.
16. May include six months' assignment to Department of Rehabilitation and Physical Medicine approved program.
17. May include on year of training in the Department of Surgical Pathology.
18. May include one year of training in Chronic Diseases at Jewish Hospital, Roxbury, or Holy Ghost Hospital, Cambridge, Mass.
19. Includes six months' assignment, Ohio State University Medical School, Columbus, Ohio.
20. May include assignment to the Institute for Cancer Research and Lankenau Hospital Research Institute, Philadelphia.
21. Includes assignment at Urologic Clinic, Philadelphia.
22. Apply: Office of Graduate Medical Education; University of Colorado Medical Center.
23. Apply: Director, Graduate Division, Northwestern University Medical School, 303 East Chicago Avenue, Chicago 11.
24. Apply: Medical College, State of South Carolina.

The following hospitals offer acceptable training which is integrated with or contributing to the fully approved program in the listing of which the footnote reference appears.

25. Maricopa County Hospital, Phoenix, Ariz.
26. Pima County General Hospital, Tucson, Ariz.
27. University Hospital, Little Rock, Ark.
28. California Hospital, Los Angeles.
29. Children's Hospital, Los Angeles.
31. Los Angeles County Hospital, Los Angeles.
32. Veterans Administration Hospital, Los Angeles.
33. White Memorial Hospital, Los Angeles.
34. Samuel Merritt Hospital, Oakland, Calif.
35. Orange County Hospital, Orange, Calif.
36. Franklin Hospital, San Francisco.
37. Franklin Hospital, Shriners Hospital for Crippled Children, Langley Porter Clinic-Hospital, San Francisco.
38. House of the Good Shephard, San Francisco.
39. St. Luke's Hospital, San Francisco; Herrick Memorial Hospital, Berkeley, Calif.; Highland Hospital, Oakland, Calif.
40. San Francisco Hospital, San Francisco.
41. Southern Pacific General Hospital, San Francisco.
42. University of California Hospital, San Francisco.
43. Mills Memorial Hospital, San Mateo, Calif.; Ernest V. Cowell Memorial Hospital, Berkeley, Calif.; Franklin Hospital, San Francisco; St. Luke's Hospital, San Francisco; Langley Porter Clinic-Hospital, San Francisco.
44. Fairmont Hospital of Alameda County, San Leandro, Calif.
45. Santa Barbara General Hospital, Santa Barbara, Calif.
46. Santa Monica Hospital, Santa Monica, Calif.
47. Santa Monica Hospital, Santa Monica, Calif.; Orange County Hospital, Orange, Calif.; Collis P. and Howard Huntington Memorial Hospital, Pasadena, Calif.
48. Colorado General Hospital, Denver.
49. Denver General Hospital, Denver.
50. Fitzsimons Army Hospital, Denver.
51. Jewish Hospital, Denver.
52. St. Joseph's Hospital, Denver.
53. Hartford Hospital, Hartford, Conn.
54. Hartford Hospital, Hartford, Conn.; Newington Home and Hospital for Crippled Children, Newington, Conn.; New York University-Bellevue Medical Center, New York City.
55. McCook Memorial Hospital, Hartford, Conn.
56. Newington Home and Hospital for Crippled Children, Newington, Conn.
57. Veterans Administration Hospital, Newington, Conn.
58. Norwich State Tuberculosis Sanitorium, Norwich, Conn.
59. Uncas-on-Thames State T.B. Sanatorium, Norwich, Conn.
60. Laurel Heights Sanatorium, Shelton, Conn.
61. Governor Bacon Health Center, Delaware City, Del.
62. Children's Hospital, Washington, D. C.
63. Eastern Dispensary and Casualty Hospital, Washington, D. C.
64. Gallinger Municipal Hospital, Washington, D. C.
65. Garfield Memorial Hospital, Washington, D. C.
66. Available only to U. S. Army, Regular Army Medical Corps Officers and eligible applicants for the U. S. Regular Army Medical Corps. *Apply:* Office of the Surgeon General, Department of the Army, Washington 25, D. C., Attention: Personnel Division.
67. Walter Reed Army Hospital and Army Medical Department Research and Graduate School, Washington, D. C.
68. Mercy Hospital, Miami, Fla.
69. National Children's Cardiac Home, Miami, Fla.
70. Variety Children's Hospital, Miami, Fla.
71. St. Francis Hospital, Miami Beach, Fla.
72. Grady Memorial Hospital, Atlanta, Ga.
73. Veterans Administration Hospital, Atlanta, Ga.
74. University Hospital, Augusta, Ga.
75. Columbus City Hospital, Columbus, Ga.
76. Emory University Hospital, Emory University, Ga.
77. Macon Hospital, Macon, Ga.
78. Battey State Hospital, Rome, Ga.
79. Chicago Lying-In Hospital, Chicago.
80. Chicago Maternity Center, Chicago.
81. May include six months' training at Children's Memorial Hospital, Chicago.
82. Cook County Hospital, Chicago.
83. May include one year training in hematology.
84. Third year, by special arrangement, at Cook County Hospital, Chicago, or Veterans Administration Hospital, Hines, Ill.
85. Will include third year of training at Cook County Hospital or Veterans Administration Hospital, Chicago.
86. Illinois Eye and Ear Infirmary, Chicago.
87. La Rabida Jackson Park Sanitarium, Chicago.
88. Lewis Memorial Maternity Hospital, Chicago.
89. Municipal Contagious Disease Hospital, Chicago.
90. Passavant Hospital, Chicago.
91. Presbyterian Hospital, Chicago.
92. Roseland Community Hospital, Chicago.
93. St. Anne's Hospital, Chicago.
94. St. George Hospital, Chicago.
95. St. Luke's Hospital, Chicago.
96. St. Vincent's Infant and Maternity Hospital, Chicago; St. Anne's Hospital, Chicago; Mercy Hospital, Chicago.
97. University of Chicago Maternity Center, Chicago.
98. Wesley Memorial Hospital, Chicago.
99. Women's and Children's Hospital, Chicago.
100. Veterans Administration Hospital, Fort Wayne, Ind.
101. Indianapolis General Hospital, Indianapolis.
102. Indiana University Medical Center, Indianapolis.
103. Veterans Administration Hospital, Indianapolis.
104. Inlow Clinic, Shelbyville, Ind.
105. Healthwin Hospital, South Bend, Ind.
106. Northern Indiana Children's Hospital, South Bend, Ind.
107. Broadlawns Polk County Hospital, Des Moines, Iowa.
108. University of Iowa Hospitals, Iowa City, Iowa.
109. Veterans Administration Hospital, Kansas City, Mo.
110. Children's Hospital, Louisville, Ky.
111. Louisville General Hospital, Louisville, Ky.
112. Louisville General Hospital, Louisville Children's Hospital, Louisville, Ky.
113. Norton Infirmary, Veterans Administration, Louisville General Hospital, Louisville, Ky.
114. Veterans Administration Hospital, Louisville, Ky.
115. Oneida Maternity Hospital, Oneida, Ky.
116. Charity Hospital, New Orleans.
117. Charity Hospital, Louisiana State University Unit, New Orleans.
118. May include training in gerontology.
119. Baltimore City Hospitals, Baltimore.
120. Hospital for the Women of Maryland, Baltimore.
121. James Lawrence Kernan Hospital, Baltimore.
122. Johns Hopkins Hospital, Baltimore.
123. Mercy Hospital, Baltimore.
124. University Hospital, Baltimore.
125. U. S. Public Health Service Hospital, Baltimore.
126. Prince George's General Hospital, Cheverly, Md.
127. Sacred Heart Hospital, Cumberland, Md.
128. Hartford Memorial Hospital, Havre de Grace, Md.
129. La Plata Hospital, La Plata, Md.
130. Peninsula General Hospital, Salisbury, Md.
131. Boston Children's Hospital, Boston.
132. Integrated with program at Peter Bent Brigham Hospital, Boston, to which application for appointment should be made.
133. Boston Lying-In Hospital, Boston.
134. Veterans Administration Hospital, Framingham, Mass.
135. Children's Hospital, Boston.
136. Children's Medical Center, Boston.
137. Lahey Clinic, Boston.
138. Massachusetts General Hospital, Boston.
139. Overholt Clinic, Boston.
140. Peter Bent Brigham Hospital, Boston.
141. Free Hospital for Women, Brookline, Mass.
142. Cambridge Tuberculosis Sanatorium, Cambridge, Mass.

Numerical and Other References—Continued

143. St. Margaret's Hospital, Dorchester, Mass.
144. Lakeville State Sanitarium, Middleboro, Mass.
145. Salem Hospital, Salem, Mass.
146. Veterans Administration Hospital, Dearborn, Mich.
147. City of Detroit Receiving Hospital, Detroit.
148. Harper Hospital, Detroit.
149. Herman Kiefer Hospital, Detroit.
150. Woman's Hospital, Detroit; Herman Kiefer Hospital, Detroit; Detroit Memorial Hospital, Detroit; Children's Hospital, Detroit.
151. Cardiac Clinic, Grand Rapids, Mich.
152. Evangeline Home and Hospital, Grand Rapids, Mich.
153. Oakland County Contagious Hospital, Pontiac, Mich.
154. Oakland County T.B. Sanatorium, Pontiac, Mich.
155. Pontiac State Hospital, Pontiac, Mich.
156. University ot Minnesota Hospitals, Minneapolis.
157. Ancker Hospital, St. Paul.
158. Veterans Administration Hospital, Jefferson Barracks, Mo.
159. Robert Koch Hospital, Koch, Mo.
160. St. Anthony's Hospital, St. Louis
161. St. John's Hospital, St. Louis.
162. St. Louis City Hospital, St. Louis.
163. St. Louis County Hospital, St. Louis.
164. St. Louis County Hospital, St. Louis; Burge Hospital, Springfield, Mo.; St. Louis Maternity Hospital, St. Louis.
165. St. Louis Maternity Hospital, St. Louis.
166. St. Louis State Hospital, St. Louis.
167. St. Mary's Infirmary, St. Louis.
168. Bryan Memorial Hospital, Lincoln, Neb.
169. Children's Memorial Hospital, Omaha.
170. Nebraska Methodist Hospital, Omaha.
171. Mary Hitchcock Memorial Hospital, Hanover, N. H.
172. Essex County Isolation Hospital, Belleville, N. J.
173. Medical Center-Jersey City Hospital, Jersey City, N. J.
174. Margaret Hague Maternity Hospital, Jersey City, N. J.
175. Presbyterian Hospital, Newark, N. J.
176. Albany Hospital, Albany, N. Y.
177. Brooklyn Eye and Ear Hospital, Brooklyn.
178. Brooklyn Hospital, Brooklyn.
179. Jewish Hospital, Brooklyn.
180. Jewish Hospital, Cumberland Hospital, Maimonides Hospital, Brooklyn.
181. Jewish Sanitarium and Hospital for Chronic Diseases, Brooklyn.
182. John E. Jennings Hospital, Brooklyn.
183. Kings County Hospital, Brooklyn.
184. Kingston Avenue Hospital, Brooklyn.
185. Veterans Administration Hospital, Brooklyn.
186. Allied Sisters of Charity Hospital, Buffalo.
187. Buffalo Eye and Ear Hospital, Buffalo.
188. Children's Hospital, Buffalo.
189. Children's Hospital, Buffalo; Roswell Park Memorial Institute, Buffalo; Peter Bent Brigham Hospital, Boston.
190. Edward J. Meyer Memorial Hospital, Children's Hospital, Veterans Administration Hospital, Buffalo.
191. Edward J. Meyer Memorial Hospital, Buffalo; Hospital for Special Surgery, New York City; Willard Parker Hospital, New York City.
192. Edward J. Meyer Memorial Hospital, Buffalo.
193. Emergency Hospital, Buffalo.
194. Roswell Park Memorial Hospital, Buffalo.
195. Triboro Hospital, Jamaica, N. Y.
196. Beekman-Downtown Hospital, New York City.
197. Bellevue Hospital Center, New York City.
198. Bellevue Hospital Center, Division IV, New York University Post-Graduate Medical School, New York City.
199. Beth Israel Hospital, New York City.
200. Flower and Fifth Avenue Hospitals, New York City.
201. Goldwater Memorial Hospital, New York City.
202. Gouverneur Hospital, New York City.
203. Memorial Hospital, New York City.
204. Memorial Hospital, New York City; Kingston Avenue Hospital, Brooklyn; New York Foundling Hospital, New York City.
205. Mount Sinai Hospital, New York City.
206. New York Hospital, New York City.
207. Roosevelt Hospital, New York City.
208. University Hospital, New York City.
209. Willard Parker Hospital, New York City.
210. Woman's Hospital, New York City.
211. Summit Park T.B. Sanatorium, Pomona, N. Y.
212. Genesee Hospital, Rochester, N. Y.
213. Highland Hospital, Rochester, N. Y.
214. Rochester General Hospital, Rochester, N. Y.
215. Strong Memorial Hospital, Rochester, N. Y.
216. Sun Mount Hospital, Sun Mount, N. Y.
217. University, Syracuse Memorial, Crouse-Irving and City Hospitals; Syracuse Dispensary.
218. Syracuse Memorial, Syracuse General, Crouse-Irving, and St. Joseph's Hospitals; Syracuse Dispensary.
219. Syracuse Memorial and University Hospitals; Syracuse Dispensary.
220. Syracuse Memorial, University, and Crouse-Irving Hospitals.
221. Syracuse Memorial and University Hospitals; Syracuse Dispensary.
222. Grasslands Hospital, Valhalla, N. Y.
223. St. Agnes Hospital, White Plains, N. Y.
224. St. Joseph's Hospital, Yonkers, N. Y.
225. Western North Carolina Sanatorium, Black Mountain, N. C.
226. North Carolina Memorial Hospital, Chapel Hill, N. C.; Watts Hospital, Durham, N. C.; Duke Hospital, Durham, N. C.
227. Duke Hospital, Durham, N. C.
228. Durham County T.B. Sanatorium, Durham, N. C.
229. Eastern Medical Center, Durham, N. C.
230. McPherson Hospital, Durham, N. C.
231. Watts Hospital, Durham, N. C.
232. U. S. Army Hospital, Fort Bragg, N. C.
233. City Memorial Hospital, Winston-Salem, N. C.
234. City Hospital, Akron, Ohio.
235. Peoples Hospital, Akron, Ohio.
236. Longview State Hospital, Cincinnati, Ohio.
237. St. Mary's Hospital, Cincinnati.
238. Children's Hospital, Columbus, Ohio.
239. Mount Carmel Hospital, Columbus, Ohio.
240. Ohio T.B. Hospital, Columbus, Ohio.
241. St. Francis Hospital, Columbus, Ohio.
242. St. Francis Hospital, Ohio T.B. Hospital, Children's Hospital, Columbus, Ohio.
243. St. Francis Hospital, Ohio T.B. Hospital, Columbus Receiving Hospital, Columbus, Ohio.
244. University Hospitals, Columbus, Ohio.
245. St. Anthony Hospital, Oklahoma City.
246. University of Oklahoma Hospitals, Oklahoma City.
247. Veterans Administration Hospital, Oklahoma City.
248. Program transferred to Veteran Administration Hospital, West Haven, Conn., on or about Sept. 15, 1953.
249. Good Samaritan and St. Vincent's Hospitals, Portland, Ore.
250. Emanuel Hospital, Portland, Ore.
251. Providence Hospital, Portland, Ore.
252. University of Oregon Medical School Hospitals and Clinics, Portland, Ore.
253. Veterans Administration Hospital, Portland, Ore.
254. Children's Hospital, Philadelphia.
255. Hospital of the University of Pennsylvania, Philadelphia.
256. Philadelphia Hospital for Contagious Diseases, Philadelphia.
257. Presbyterian Hospital, Philadelphia.
258. St. Vincent's Hospital for Women and Children, Philadelphia.
259. Service in Laryngeal Surgery and Bronchoesophagology also available.
260. Western Pennsylvania Hospital, Pittsburgh.
261. Presbyterian Hospital, Philadelphia; Woman's Hospital, Philadelphia; Pittsburgh Eye and Ear Hospital, Pittsburgh; Elizabeth Steele Magee Hospital, Pittsburgh; Children's Hospital, Philadelphia; Western Psychiatric Institute and Clinic, Pittsburgh.
262. Providence Lying-In Hospital, Providence, R. I.
263. Providence Lying-In Hospital, Providence, R. I.; Charles V. Chapin Hospital, Providence, R. I.; Emma Pendleton Bradley Home, Riverside, R. I.; Children's Hospital, Boston.
264. City of Memphis Hospitals, Memphis.
265. LeBonheur Children's Hospital, Memphis.
266. West Tennessee T.B. Hospital, Memphis.
267. Nashville General Hospital, Nashville, Tenn.
268. St. Thomas Hospital, Nashville, Tenn.
269. Third year of training available at Vanderbilt University Hospital, Nashville, Tenn.
270. Children's Hospital, Dallas, Texas.
271. Parkland Hospital, Dallas, Texas.
272. St. Mary's Infirmary, Galveston, Texas.
273. Hermann Hospital, Houston Negro Hospital, Houston, Texas.
274. Houston T.B. Hospital, Houston, Texas.
275. Jefferson Davis Hospital, Houston, Texas.
276. M. D. Anderson Hospital for Cancer Research, Houston, Texas.
277. St. Joseph's Hospital, Houston, Texas.
278. Veterans Administration Hospital, Houston, Texas.
279. Veterans Administration Hospital, McKinney, Texas.
280. Brooke Army Hospital, 4th Army Medical Laboratory, and Medical Field Service School, San Antonio, Texas.
281. Dr. W. H. Groves Latter-Day Saints Hospital, Holy Cross Hospital, St. Mark's Hospital, Salt Lake County General Hospital, Veterans Administration Hospital, Salt Lake City.
282. Third year of training available at Salt Lake County General Hospital, Salt Lake City.
283. Salt Lake County General Hospital, Salt Lake City.
284. Shriners Hospital for Crippled Children, Salt Lake City.
285. Bishop DeGoesbriand Hospital, Burlington, Vt.
286. Bishop DeGoesbriand Hospital, Burlington, Vt.; Trudeau Sanatorium, Trudeau, N. Y.; Children's Hospital, Boston.
287. Mary Fletcher Hospital, Burlington, Vt.
288. Kerbs Memorial Hospital, St. Albans, Vt.; Porter Hospital, Middlebury, Vt.
289. Vermont State Hospital, Waterbury, Vt.
290. Arlington Hospital, Arlington, Va.
291. McGuire Hospital, Richmond, Va.
292. Richmond Eye, Ear, Nose, and Throat Hospital, Richmond, Va.
293. Children's Orthopedic Hospital, Seattle.
294. Firland Sanatorium, Seattle.
295. Booth Memorial Hospital, Spokane, Wash.
296. Columbia Hospital, Milwaukee.
297. A third year of training in Radiology is provided through affiliation with Milwaukee Hospital and Milwaukee Children's Hospital and the University of Chicago Clinics.
298. Milwaukee Hospital, Milwaukee.
299. Misericordia Hospital, Milwaukee.
300. Muirdale T.B. Sanatorium and Contagious Hospital, Milwaukee.
301. Kapiolani Maternity Hospital, Honolulu, T. H.
302. St. Francis Hospital, Honolulu; Leahi Hospital, Honolulu; Kaneohe Territorial Hospital, Kaneohe; Salvation Army Women's Home, Honolulu, T. H.
303. Syracuse Memorial, St. Joseph's, Crouse-Irving, and Welting-Johnson Hospitals; Syracuse Dispensary.
304. Syracuse Memorial, University, St. Joseph's, and Crouse-Irving Hospitals; Syracuse Dispensary.

HOSPITALS APPROVED FOR RESIDENCY TRAINING

Number of Hospitals, 1,159; Number of Programs, 4,707

Name of Hospital	Location	Approved Residencies
Birmingham Baptist Hospital★	Birmingham, Ala	Path.
Carraway Methodist Hospital★		Int. Med., Obst., Surg., Urol.
Children's Hospital		Ped.
Jefferson-Hillman Hospital★		Anes., Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Lloyd Noland Hospital★	Fairfield, Ala	Anes., Derm Syph., Int. Med., Obst., Ortho. Surg., Path., Ped., Surg. Urol.
City Hospital★	Mobile, Ala	Int. Med., Ortho. Surg., Path., Ped., Surg.
Veterans Admin. Hospital	Tuskegee, Ala	Int. Med., Ophth., Psych., Rad., Surg.
Good Samaritan Hospital	Phoenix, Ariz	Ob.-Gyn.
Maricopa County General Hospital★	Phoenix, Ariz	Gen'l Pract., Ob.-Gyn., Surg.
Memorial Hospital★	Phoenix, Ariz	Rad.
St. Joseph's Hospital★	Phoenix, Ariz	Surg.
St. Mary's Hospital and Sanatorium★	Tucson, Ariz	Gen'l Pract., Int. Med.
Tucson Medical Center★	Tucson, Ariz	Int. Med., Surg.
Army-Navy General Hospital★	Hot Springs, Ark	Surg.
Arkansas Baptist Hospital★	Little Rock, Ark	Int. Med., Ophth., Surg.
Arkansas Children's Home and Hospital	Little Rock, Ark	Ortho. Surg.
Arkansas State Hospital	Little Rock, Ark	Psych.
St. Vincent Infirmary★	Little Rock, Ark	Anes.
University Hospital★	Little Rock, Ark	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Veterans Admin. Hospital★	Little Rock, Ark	Int. Med., Surg.
Veterans Admin. Hospital	North Little Rock, Ark	Psych.
Agnews State Hospital	Agnew, Calif	Psych.
General Hospital of Riverside County★	Arlington, Calif	Gen'l Pract., Int. Med., Surg.
Kern General Hospital	Bakersfield, Calif	Gen'l Pract., Int. Med., Path., Ped., Rad.
Herrick Memorial Hospital★	Berkeley, Calif	Int. Med., Ob.-Gyn., Path., Psych., Rad.
U. S. Army Hospital	Camp Cooke, Calif	Surg.
Compton Sanitarium	Compton, Calif	Psych.
City of Hope	Duarte, Calif	Mal. Dis., Pul. Dis., Thor. Surg.
San Joaquin General Hospital★	French Camp, Calif	Int. Med., Ob.-Gyn., Ped., Rad., Surg.
General Hospital of Fresno County★	Fresno, Calif	Int. Med., Ophth., Ped., Rad., Surg.
Glendale Sanitarium and Hospital★	Glendale, Calif	Int. Med., Ob.-Gyn., Path., Surg.
Napa State Hospital	Imola, Calif	Psych.
Arroyo-Del Valle Sanatorium	Livermore, Calif	Pul. Dis.
Loma Linda Sanitarium and Hospital★	Loma Linda, Calif	Path.
Seaside Memorial Hospital★	Long Beach, Calif	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Veterans Admin. Hospital★	Long Beach, Calif	Allergy, Card. Dis., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ophth., Otol., Ortho. Surg., Path., Phys. Med., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Barlow Sanatorium	Los Angeles, Calif	Pul. Dis.
California Babies' and Children's Hospital	Los Angeles, Calif	Ped.
California Hospital★	Los Angeles, Calif	Int. Med., Obst., Path., Surg.
Cedars of Lebanon Hospital★	Los Angeles, Calif	Int. Med., Neuro. Surg., Path., Rad., Surg.
Children's Hospital★	Los Angeles, Calif	Ortho. Surg., Path., Ped,
Eye and Ear Hospital	Los Angeles, Calif	Ophth., Otol.
Hospital of the Good Samaritan★	Los Angeles, Calif	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Los Angeles County Hospital★	Los Angeles, Calif	Anes., Derm. Syph., Gen'l Pract., Int. Med., Neur. Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped. Phys. Med., Psych., Rad., Surg., Urol.
Methodist Hospital of Southern California★	Los Angeles, Calif	Gen'l Pract.
Orthopedic Hospital	Los Angeles, Calif	Otho. Surg.
Presbyterian Hospital-Olmsted Memorial★	Los Angeles, Calif	Int. Med., Mal. Dis., Ob.-Gyn., Rad., Surg., Urol.
Queen of Angels Hospital★	Los Angeles, Calif	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
St. Vincent's Hospital★	Los Angeles, Calif	Int. Med., Path., Surg.
Santa Fe Coast Lines Hospital★	Los Angeles, Calif	Surg.
Veterans Admin. Hospital★	Los Angeles, Calif	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ophth., Otol., Ortho. Surg., Path., Plas. Surg., Proct., Psych., Rad., Surg., Thor. Surg., Urol.
White Memorial Hospital★	Los Angeles, Calif	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Rad., Surg., Urol.
Contra Costa County Hospital	Martinez, Calif	Gen'l Pract.
Bret Har	Murphys, Calif	Pul. Dis.
Norwalk	Norwalk, Calif	Psych.
Children's	Oakland, Calif	Ped.
Highland-Alameda County Hospital★	Oakland, Calif	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Thor. Surg.
Peralta Hospital	Oakland, Calif	Surg.
Kaiser Foundation Hospital★	Oakland, Calif	Int. Med., Ob.-Gyn., Path., Ped., Surg.
Samuel Merritt Hospital	Oakland, Calif	Anes., Int. Med., Ortho. Surg., Surg.
U. S. Naval Hospital★	Oakland, Calif	Anes., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Palo Alto, Calif	Psych.
Collis P. and Howard Huntington Memorial Hosp.★	Pasadena, Calif	Int. Med., Mal. Dis., Ob.-Gyn., Path., Rad., Surg.
Patton State Hospital	Patton, Calif	Psych.
Sequoia Hospital	Redwood City, Calif	Gen'l Pract.
Sacramento County Hospital★		Gen'l Pract., Path.
Sutter General Hospital		Rad.
Monterey County Hospital		Gen'l Pract.
San Bernardino County Charity Hospital★		Path., Surg.
Mercy Hospital★	San Diego, Calif	Int. Med., Ob.-Gyn., Path., Surg.
San Diego County General Hospital★	San Diego, Calif	Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Pul. Dis., Rad., Surg., Urol.
U. S. Naval Hospital★	San Diego, Calif	Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Children's Hospital★	San Francisco, Calif	Con. Dis., Int. Med., Ob.-Gyn., Otol., Ortho. Surg., Ped., Rad., Surg.
Franklin Hospital★	San Francisco, Calif	Anes., Int. Med., Neuro. Surg., Ophth., Ortho. Surg., Path., Plas. Surg., Rad., Surg., Urol.
French Hospital★	San Francisco, Calif	Anes., Int. Med., Path., Surg.
Green's Eye Hospital	San Francisco, Calif	Ophth.
Langley Porter Clinic-Hospital	San Francisco, Calif	Psych.
Letterman Army Hospital★	San Francisco, Calif	Anes., Card. Dis., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Mary's Help Hospital★	San Francisco, Calif	Int. Med., Ob.-Gyn., Surg.
Mount Zion Hospital★	San Francisco, Calif	Int. Med., Path., Ped., Psych., Surg.
St. Francis Memorial Hospital	San Francisco, Calif	Gen'l Pract., Ob.-Gyn., Path., Plas. Surg., Rad.
St. Joseph's Hospital★	San Francisco, Calif	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Surg.
St. Luke's Hospital★	San Francisco, Calif	Int. Med., Path., Surg.
St. Mary's Hospital★	San Francisco, Calif	Int. Med., Obst., Ortho. Surg., Ped., Rad., Surg.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
San Francisco Hospital ★	San Francisco, Calif.	Int. Med., Ob.-Gyn., Otol., Ortho. Surg., Path., Pul. Dis., Rad., Surg.
Stanford Univ	San Francisco, Calif.	Int. Med., Ob.-Gyn., Otol., Ortho. Surg., Path., Pul. Dis., Rad., Surg.
University of	San Francisco, Calif.	Ortho. Surg.
Shriners Hospita	San Francisco, Calif.	Int. Med., Surg., Urol.
Southern Pacific	San Francisco, Calif.	Anes., Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Stanford University Hospital ★		
U. S. Public Health Service Hospital ★	San Francisco, Calif.	Int. Med., Surg.
University of California Hospital ★	San Francisco, Calif.	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Veterans Admin. Hospital	San Francisco, Calif.	Int. Med., Neur., Neuro. Surg., Ophth., Otol., Ortho. Surg., Path., Rad., Surg., Urol.
Santa Clara County Hospital ★	San Jose, Calif.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Pul. Dis., Surg., Urol.
Fairmont Hospital of Alameda County	San Leandro, Calif.	Pul. Dis.
Community Hospital of San Mateo County	San Mateo, Calif.	Gen'l Pract., Int. Med., Surg.
Santa Barbara Cottage Hospital ★	Santa Barbara, Calif.	Int. Med., Path., Rad., Surg.
Santa Barbara General Hospital	Santa Barbara, Calif.	Surg.
St. John's Hospital ★	Santa Monica, Calif.	Ob.-Gyn., Surg.
Santa Monica Hospital ★	Santa Monica, Calif.	Rad.
Sonoma County Hospital	Santa Rosa, Calif.	Gen'l Pract., Ortho. Surg.
Pacific Colony (State Hospital)	Spadra, Calif.	Psych.
Tulare-Kings Counties Joint Tuberculosis Hospital	Springville, Calif.	Pul. Dis.
Harbor General Hospital ★	Torrance, Calif.	Int. Med., Ob.-Gyn., Ped., Surg., Thor. Surg., Urol.
Glockner-Penrose Hospital ★	Colorado Springs, Colo.	Gen'l Pract., Int. Med., Path., Rad.
St. Francis Hospital	Colorado Springs, Colo.	Gen'l Pract., Path., Rad.
Fitzsimons Army Hospital ★	Denver, Colo.	Anes., Card. Dis., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho., Path., Ped., Phys. Med., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
General Rose Memorial Hospital ★	Denver, Colo.	Path., Rad.
National Jewish Hospital	Denver, Colo.	Pul. Dis., Thor. Surg.
Presbyterian Hospital ★	Denver, Colo.	Path., Rad., Surg.
St. Anthony Hospital ★	Denver, Colo.	Int. Med., Surg.
St. Joseph's Hospital ★	Denver, Colo.	Int. Med., Ob.-Gyn., Path., Surg.
St. Luke's Hospital ★	Denver, Colo.	Int. Med., Path., Rad., Surg.
Childrens Hospital	Denver, Colo.	Ortho. Surg., Path., Ped., Surg.
University of Colorado Medical Center		
Colorado General Hospital ★	Denver, Colo.	Anes., Derm. Syph., Gen'l Pract., Int. Med., Neur., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Rad., Surg., Urol.
Colorado Psychopathic Hospital	Denver, Colo.	Psych.
Denver General Hospital ★	Denver, Colo.	Anes., Gen'l Pract., Int. Med., Ob.-Gyn., Otol., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Veterans Admin. Hospital	Denver, Colo.	Int. Med., Ortho. Surg., Path., Phys. Med., Rad., Surg.
Colorado State Hospital	Pueblo, Colo.	Int. Med., Path., Psych., Surg.
Corwin Hospital ★	Pueblo, Colo.	Int. Med., Surg.
Bridgeport Hospital ★	Bridgeport, Conn.	Anes., Int. Med., Obst., Path., Rad., Surg.
St. Vincent's Hospital ★	Bridgeport, Conn.	Int. Med., Obst., Surg.
Hartford Hospital ★	Hartford, Conn.	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg.
Institute of Living	Hartford, Conn.	Psych.
McCook Memorial Hospital ★	Hartford, Conn.	Int. Med., Surg.
St. Francis Hospital ★	Hartford, Conn.	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Path., Ped., Surg.
Connecticut State Hospital	Middletown, Conn.	Psych.
Middlesex Hospital ★	Middletown, Conn.	Path.
New Britain General Hospital ★	New Britain, Conn.	Int. Med., Ob.-Gyn., Path., Surg.
Silver Hill Foundation	New Canaan, Conn.	Psych.
Grace-New Haven Community Hospital		
General Service ★	New Haven, Conn.	Int. Med., Ob.-Gyn., Rad., Surg.
University Service ★	New Haven, Conn.	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.
Hospital of St. Raphael ★	New Haven, Conn.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Newington Home and Hospital for Crippled Children	Newington, Conn.	Ortho. Surg.
Veterans A	Newington, Conn.	Int. Med., Path., Psych., Rad., Surg., Urol.
Lawrence	New London, Conn.	Int. Med., Ob.-Gyn., Surg.
Fairfield State Hospital	Newtown, Conn.	Psych.
Norwalk Hospital ★	Norwalk, Conn.	Int. Med., Obst., Path., Surg.
Norwich State	Norwich, Conn.	Psych.
Norwich State	Norwich, Conn.	Pul. Dis., Thor. Surg.
State of Conne	Rocky Hill, Conn.	Phys. Med.
Laurel Heights State Tuberculosis Sanatorium	Shelton, Conn.	Pul. Dis.
Stamford Hospital ★	Stamford, Conn.	Path.
Charlotte Hungerford Hospital	Torrington, Conn.	Gen'l Pract.
St. Mary's Hospital ★	Waterbury, Conn.	Int. Med., Path., Rad., Surg.
Waterbury Hospital ★	Waterbury, Conn.	Int. Med., Path., Ped., Rad., Surg., Urol.
Delaware State	Farnhurst, Del.	Psych.
Alfred I. duPont	Wilmington, Del.	Ortho. Surg.
Delaware Hospital ★	Wilmington, Del.	Int. Med., Path., Ped., Rad., Surg., Urol.
Memorial Hospital ★	Wilmington, Del.	Int. Med., Path., Surg.
Wilmington General Hospital ★	Wilmington, Del.	Gen'l Pract., Int. Med., Path.
Armed Forces Institute of Pathology	Washington, D. C.	Path.
Army Medical Center ★	Washington, D. C.	Allergy, Anes., Card. Dis., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
Central Dispensary and Emergency Hospital ★	Washington, D. C.	Int. Med., Rad., Surg.
Children's Hospital	Washington, D. C.	Path., Ped.
Columbia Hospital for Women and Lying-In Asylum	Washington, D. C.	Ob.-Gyn.
Doctors Hospital ★	Washington, D. C.	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Eastern Dispensary and Casualty Hospital	Washington, D. C.	Gen'l Pract.
Episcopal Eye, Ear, and Throat Hospital	Washington, D. C.	Ophth., Otol.
Freedmen's Hospital ★	Washington, D. C.	Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Ped., Pul. Dis., Rad., Surg., Urol.
Gallinger Municipal Hospital ★	Washington, D. C.	Int. Med., Neur., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Pul. Dis., Rad., Surg., Urol.
Garfield Memorial Hospital ★	Washington, D. C.	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Georgetown University Hospital ★	Washington, D. C.	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Path., Ped., Psych., Rad., Surg.
George Washington University Hospital ★	Washington, D. C.	Anes., Card. Dis., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Path., Phys. Med., Psych., Rad., Surg.
Providence Hospital ★	Washington, D. C.	Int. Med., Ob.-Gyn., Path., Ped., Surg.
St. Elizabeth's Hospital ★	Washington, D. C.	Neur., Psych., Surg.
Sibley Memorial Hospital ★	Washington, D. C.	Ob.-Gyn., Path., Surg.
Tuberculosis Sanatorium (Glendale, Md.)	Washington, D. C.	Pul. Dis.
Veterans Admin. Hospital	Washington, D. C.	Int. Med., Neur., Otol., Path., Rad., Surg., Urol.
Veterans Admin. Hospital	Coral Gables, Fla.	Int. Med., Path., Surg.
Halifax District Hospital	Daytona Beach, Fla.	Gen'l Pract.
Duval Medical Center ★	Jacksonville, Fla.	Int. Med., Ob.-Gyn., Ped., Rad., Surg., Urol.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
Hope Haven Hospital		Ortho. Surg.
Riverside Hospital		Anes., Int. Med., Surg.
St. Luke's Hospital ★		Gen'l Pract., Int. Med., Obst., Surg.
St. Vincent's Hospital ★		Gen'l Pract., Int. Med., Neuro. Surg., Ob.-Gyn., Path., Ped., Surg., Urol.
Jackson Memorial Hospital ★		Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Mount Sinai Hospital ★	Miami Beach, Fla	Anes., Int. Med., Path., Rad., Surg.
St. Francis Hospital ★	Miami Beach, Fla	Int. Med., Path., Surg.
Orange Memorial Hospital ★	Orlando, Fla	Int. Med., Obst., Surg., Urol.
American Legion Hospital for Crippled Children		Ortho. Surg.
Mound Park Hospital ★		Int. Med., Ob.-Gyn., Surg.
Tampa Municipal Hospital		Int. Med., Ob.-Gyn., Otol., Psych., Surg.
Crawford W. Long Memorial Hospital ★	Atlanta, Ga	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Georgia Baptist Hospital ★	Atlanta, Ga	Int. Med., Ob.-Gyn., Path., Surg.
Grady Memorial Hospital ★	Atlanta, Ga	Gen'l Pract., Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Rad., Surg., Urol.
Henrietta Egleston Hospital for Children	Atlanta, Ga	Ped.
Piedmont Hospital ★	Atlanta, Ga	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Joseph's Infirmary ★	Atlanta, Ga	Int. Med., Ob.-Gyn., Surg.
Veterans Admin. Hospital ★	Atlanta, Ga	Anes., Int. Med., Ophth., Otol., Path., Rad., Surg., Urol.
University Hospital ★	Augusta, Ga	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.
Veterans Admin. Hospital	Augusta, Ga	Int. Med., Psych., Rad., Surg.
Columbus City Hospital ★	Columbus, Ga	Gen'l Pract.
Scottish Rite Hospital for Crippled Children	Decatur, Ga	Ortho. Surg.
Emory University Hospital ★	Emory University, Ga	Anes., Int. Med., Neuro. Surg., Ortho. Surg., Path., Phys. Med., Rad., Surg.
U. S. Army Hospital	Fort Benning, Ga	Surg.
Macon Hospital ★	Macon, Ga	Gen'l Pract.
Georgia Warm Springs Foundation	Warm Springs, Ga	Phys. Med.
St. Joseph's Hospital	Alton, Ill	Gen'l Pract.
U. S. Air Force Hospital	Belleville (Scott Air Force Base), Ill	Int. Med., Surg.
MacNeal Memorial Hospital ★	Berwyn, Ill	Gen'l Pract., Surg.
Alexian Brothers Hospital ★	Chicago, Ill	Int. Med., Ortho. Surg., Path., Urol.
American Hospital ★		Anes., Int. Med., Surg.
Augustana Hospital ★		Int. Med., Neuro. Surg., Obst., Path., Rad., Surg.
Chicago Eye, Ear, Nose and Throat Hospital	Chicago, Ill	Ophth.
Chicago Maternity Center	Chicago, Ill	Obst.
Chicago Memorial Hospital ★	Chicago, Ill	Neuro. Surg., Surg.
Chicago State Hospital	Chicago, Ill	Psych.
Children's	Chicago, Ill	Ortho. Surg., Path., Ped., Surg., Thor. Surg.
City of Chi	Chicago, Ill	Pul. Dis., Thor. Surg.
Columbus Hospital ★	Chicago, Ill	Int. Med.
Cook County Hospital ★	Chicago, Ill	Anes., Con. Dis., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Englewood Hospital ★	Chicago, Ill	Int. Med., Obst., Path., Rad., Surg.
Frank Cuneo Memorial Hospital	Chicago, Ill	Ob.-Gyn.
Grant Hospital ★		Anes., Gen'l Pract., Int. Med., Ob.-Gyn., Path., Surg.
Henrotin Hospital ★		Int. Med., Obst., Surg.
Hospital of St. Anthony de Padua ★	Chicago, Ill	Int. Med., Obst., Surg.
Illinois Central	Chicago, Ill	Int. Med., Surg.
Illinois Eye and		Ophth., Otol.
Illinois Masonic		Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg.
Lewis Memorial		Ob.-Gyn.
Loretto Hospital ★		Int. Med., Obst., Psych.
Lutheran Deaconess Home and Hospital ★		Int. Med., Obst., Surg.
Mercy Hospital ★		Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Path., Ped., Psych., Rad., Surg., Urol.
Michael Reese Hospital ★	Chicago, Ill	Anes., Card. Dis., Derm. Syph., Gastro., Int. Med., Mal. Dis., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Mount Sinai Hospital ★	Chicago, Ill	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Municipal Contagious Disease Hospital	Chicago, Ill	Con. Dis.
Neuropsychiatric Institute of the University of Illinois	Chicago, Ill	Neur., Neuro. Surg., Psych.
Northwestern University Medical Center	Chicago, Ill	Allergy, Derm. Syph., Int. Med., Phys. Med.
Norwegian-American Hospital ★	Chicago, Ill	Int. Med., Path., Surg.
Passavant Memorial Hospital ★	Chicago, Ill	Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Rad., Surg.
Presbyterian Hospital ★	Chicago, Ill	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Path., Ped., Rad., Surg., Urol.
Provident Hospital ★	Chicago, Ill	Int. Med., Ob.-Gyn., Ophth., Path., Ped., Rad., Surg., Urol.
Ravenswood Hospital ★	Chicago, Ill	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Anne's Hospital ★	Chicago, Ill	Int. Med., Obst., Surg.
St. Bernard	Chicago, Ill	Rad.
St. Elizabe	Chicago, Ill	Int. Med., Ob.-Gyn., Ortho. Surg., Surg.
St. Joseph	Chicago, Ill	Int. Med., Ob.-Gyn., Ophth., Path., Ped., Surg.
St. Luke's Hospital ★	Chicago, Ill	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
St. Mary of Nazareth Hospital ★	Chicago, Ill	Gen'l Pract., Int. Med., Path., Surg.
Shriners Hospital for Crippled Children	Chicago, Ill	Ortho. Surg.
South Shore Hospital ★	Chicago, Ill	Gen'l Pract.
Swedish Covenant Hospital ★	Chicago, Ill	Obst.
University of Chicago Clinics ★	Chicago, Ill	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
University of Illinois Research and Educational Hospitals ★	Chicago, Ill	Allergy, Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg.
Wesley Memorial Hospital ★	Chicago, Ill	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Women and Children's Hospital ★		Int. Med., Ob.-Gyn., Surg.
Woodlawn Hospital ★		Int. Med., Ophth., Surg.
Decatur & Macon County Hospital ★		Gen'l Pract., Urol.
Dixon State Hospital		Psych.
Veterans Admin. Hospital		Psych.
Elgin State Hospital	Elgin, Ill	Psych.
Evanston Hospital ★	Evanston, Ill	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
St. Francis Hospital ★		Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Little Company of Mary Hospital ★		Int. Med., Ob.-Gyn., Ped., Rad., Surg.
U. S. Naval Hospital ★		Int. Med., Ob.-Gyn., Psych., Rad., Surg.
Veterans Admin. Hospital		Anes., Card. Dis., Derm. Syph., Int. Med., Mal. Dis., Neur., Neuro. Surg., Ophth., Otol., Ortho. Surg., Path., Phys. Med., Plas. Surg., Psych., Rad., Surg., Thor. Surg., Urol.
Jacksonville State Hospital	Jacksonville, Ill	Psych.
St. Joseph's Hospital ★	Joliet, Ill	Anes.
Kankakee State Hospital	Kankakee, Ill	Psych.
Manteno State Hospital	Manteno, Ill	Psych.

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Name of Hospital	Location	Approved Residencies
West Suburban H ★	Oak Park, Ill.	Int. Med., Ob.-Gyn., Ortho. Surg., Ped., Surg.
Methodist Hospit	Peoria, Ill.	Gen'l Pract., Obst., Path., Surg.
Peoria Municipal	Peoria, Ill.	Pul. Dis.
St. Francis Hospital ★	Peoria, Ill	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
U. S. Air Force Hospital		Surg.
Rockford Municipal Tuberculosis Sanatarium		Pul. Dis.
St. Anthony's Hospital ★		Path.
Swedish-American Hospital ★		Gen'l Pract.
Lake County Tuberculosis Sanatorium		Pul. Dis.
North Shore Health Resort		Psych.
St. Francis Hospital ★	Beech Grove, Ind	Gen'l Pract.
Clinic Hospital		Int. Med., Rad., Surg.
U. S. Army Hospital		Surg.
Protestant Deaconess Hospital ★		Rad.
St. Joseph's Hospital ★		Path., Rad.
Methodist Hospital ★	Gary, Ind	Gen'l Pract.
St. Margaret's Hospital ★		Gen'l Pract., Rad.
Central State Hospital		Psych.
Indianapolis General Hospital ★		Card. Dis., Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Pul. Dis., Rad., Surg., Urol.
Indiana University Medical Center ★	Indianapolis, Ind	Anes., Card. Dis., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital		Int. Med., Ortho. Surg., Path., Psych., Rad., Surg.
Methodist Hospital ★		Gen'l Pract., Int. Med., Neur., Obst., Ortho. Surg., Path., Rad., Urol.
Norways Foundation Hospital		Psych.
St. Vincent's Hospital ★		Int. Med., Ob.-Gyn., Ortho., Path., Ped.
Sunnyside Sanatorium		Pul. Dis.
St. Elizabeth Hospital ★		Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Logansport State Hospital		Psych.
Ball Memorial Hospital ★	Muncie, Ind	Int. Med., Path., Rad., Surg.
Healthwin Hospital	South Bend, Ind	Pul. Dis.
Memorial Hospital ★	South Bend, Ind	Anes., Gen'l Prac., Path.
St. Luke's Methodist Hospital ★	Cedar Rapids, Iowa	Gen'l Pract.
Mental Health Institute	Cherokee, Iowa	Psych.
Broadlawns, Polk County Hospital ★	Des Moines, Iowa	Gen'l Pract., Surg.
Iowa Methodist Hospital ★	Des Moines, Iowa	Int. Med., Ortho. Surg., Path., Ped., Rad., Surg.
Mercy Hospital ★	Des Moines, Iowa	Path.
Veterans Admin. Hospital	Des Moines, Iowa	Anes., Int. Med., Ortho. Surg., Path., Rad., Surg., Urol.
Mental Health Institute	Independence, Iowa	Psych.
Iowa State Psychopathic Hospital	Iowa City, Iowa	Psych.
Mercy Hospital ★	Iowa City, Iowa	Ortho. Surg., Surg.
University Hospitals ★	Iowa City, Iowa	Anes., Derm. Syph., Gen'l Pract., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Veterans Admin. Hospital	Iowa City, Iowa	Anes., Int. Med., Path., Rad., Surg.
Halstead Hospital	Halstead, Kan	Int. Med., Psych.
St. Margaret Hospital ★,	Kansas City, Kan	Surg.
University of Kansas Medical Center ★	Kansas City, Kan	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Plas. Surg., Psych., Rad., Surg., Urol.
Menninger Sanitarium	Topeka, Kan	Psych.
Topeka State Hospital	Topeka, Kan	Psych.
Veterans Admin. Hospital	Topeka, Kan	Int. Med., Neur., Path. Psych.
Veterans Admin. Hospital	Wadsworth, Kan	Int. Med., Neuro. Surg., Ophth., Otol., Ortho. Surg., Path., Phys. Med., Rad., Surg., Urol.
St. Francis Hospital ★	Wichita, Kan	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
Veterans Admin. Hospital	Wichita, Kan	Int. Med., Surg.
Wesley Hospital ★	Wichita, Kan	Gen'l Pract., Int. Med., Ob.-Gyn., Rad., Surg.
U. S. Army	Fort Campbell, Ky	Surg.
U. S. Army	Fort Knox, Ky	Surg.
Central Stat	Lakeland, Ky	Psych.
Good Samar	Lexington, Ky	Int. Med., Ortho. Surg., Surg.
St. Joseph Hospital ★	Lexington, Ky	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Surg., Urol.
U. S. Public Health Service Hospital	Lexington, Ky	Psych.
Veterans Admin. Hospital	Lexington, Ky	Psych.
Children's Hospital	Louisville, Ky	Ped.
Kentucky Baptis		Int. Med.
Kosair Crippled		Ortho. Surg.
Louisville Gener	Louisville, Ky	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Norton Memorial Infirmary ★	Louisville, Ky	Psych., Rad., Surg.
St. Joseph Infirmary ★	Louisville, Ky	Int. Med., Ob.-Gyn., Ped., Rad., Surg.
Veterans Admin. Hospital	Louisville, Ky	Int. Med., Neur., Neuro. Surg., Ophth., Otol., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Baptist Hospital ★	Alexandria, La	Rad.
Baton Rouge General Hospital ★	Baton Rouge, La	Gen'l Pract., Path.
St. Patrick's Hospital	Lake Charles, La	Gen'l Pract.
Charity Hospital of Louisiana ★	New Orleans, La	Anes., Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Pul. Dis., Rad., Surg., Urol.
DePaul Hospital	New Orleans, La	Psych.
Eye, Ear, Nose and Throat Hospital	New Orleans, La	Ophth., Otol.
Hotel Dieu, Sisters Hospital ★	New Orleans, La	Int. Med., Ob.-Gyn., Path., Ped., Surg.
Ochsner Foundation Hospital	New Orleans, La	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Rad., Surg., Urol.
Southern Baptist Hospital ★	New Orleans, La	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Touro Infirmary ★	New Orleans, La	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Rad., Surg.
U. S. Public Health Service Hospital ★	New Orleans, La	Int. Med., Ophth., Path., Rad., Surg.
Veterans Admin. Hospital	New Orleans, La	Derm. Syph., Int. Med., Ophth., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Confederate Memorial Hospital ★	Shreveport, La	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Shriners Hospital for Crippled Children	Shreveport, La	Ortho. Surg.
Eastern Maine General Hospital ★	Bangor, Me	Anes., Path., Rad.
Central Maine Sanatorium	Fairfield, Me	Pul. Dis.
Central Maine General Hospital ★	Lewiston, Me	Anes., Int. Med., Path., Ped., Rad., Surg.
Maine General	Portland, Me	Anes., Int. Med., Neuro. Surg., Path., Rad., Surg.
Baltimore City	Baltimore, Md	Int. Med., Neur., Obst., Ortho. Surg., Path., Ped., Pul. Dis., Rad., Surg
Baltimore Eye,	Baltimore, Md	Ophth., Otol.
Bon Secours Hospital ★	Baltimore, Md	Ob.-Gyn., Surg.
Children's Hospital School	Baltimore, Md	Ortho. Surg.
Church Home and Hospital ★	Baltimore, Md	Int. Med., Surg.
Franklin Square Hospital ★	Baltimore, Md	Int. Med., Ob.-Gyn., Surg.
Hospital for Women ★	Baltimore, Md	Int. Med., Ob.-Gyn.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
James Lawrence Kernan Hospital for Crippled Children	Baltimore, Md	Ortho. Surg.
Johns Hopkins Hospital★	Baltimore, Md	Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Rad., Surg., Syph., Urol.
Lutheran Hospital★	Baltimore, Md	Int. Med., Ob.Gyn., Surg.
Maryland General Hospital★	"	Int. Med., Ob.-Gyn., Surg.
Mercy Hospital★	"	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Provident Hospital and Free Dispensary	"	Int. Med., Obst., Surg.
St. Agnes Hospital★	"	Int. Med., Ob.-Gyn., Surg.
St. Joseph's Hospital★	"	Int. Med., Ob.-Gyn., Surg.
Seton Institute	"	Psych.
Sinai Hospital★	"	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
South Baltimore General Hospital★	"	Int. Med., Obst., Surg.
Union Memorial Hospital★	"	Int. Med., Obst., Path., Ped., Rad., Surg.
U. S. Public Health Service Hospital★	"	Int. Med., Ophth., Path., Rad., Surg.
University Hospital★	"	Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Ped., Rad., Surg., Thor. Surg., Urol.
National Institutes of Health—Clinical Center	Bethesda, Md	Int. Med., Path., Psych.
U. S. Naval Hospital★	Bethesda, Md	Anes., Card. Dis., Int. Med., Neur., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Spring Grove State Hospital	Catonsville, Md	Psych.
Memorial Hospital	Cumberland, Md	Path.
Veterans Admin. Hospital	Fort Howard, Md	Derm. Syph., Int. Med., Ophth., Ortho. Surg., Path., Rad., Surg., Urol.
Washington County Hospital★	Hagerstown, Md	Rad.
Veterans Admin. Hospital	Perry Point, Md	Int. Med., Psych., Surg.
Chestnut Lodge Sanitarium	Rockville, Md	Psych.
Springfield State Hospital	Sykesville, Md	Psych.
Sheppard & Enoch Pratt Hospital	Towson, Md	Psych.
Veterans Admin. Hospital	Bedford, Mass	Psych.
Beverly Hospital★	Beverly, Mass	Int. Med., Path., Surg.
Beth Israel Hospital★	Boston, Mass	Int. Med., Ob.-Gyn., Path., Psych., Rad., Surg., Urol.
Boston City Hospital★	Boston, Mass	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Boston Floating Hospital	Boston, Mass	Ped.
Boston Lying-In Hospital	Boston, Mass	Obst., Path.
Boston Psychopathic Hospital	Boston, Mass	Psych.
Boston Sanatorium	Boston, Mass	Pul. Dis., Thor. Surg.
Boston State Hospital	Boston, Mass	Psych.
Carney Hospital★	Boston, Mass	Int. Med., Ob.-Gyn., Surg.
Children's Medical Center★	Boston, Mass	Ortho. Surg., Path., Ped., Rad., Surg.
Faulkner Hospital★	Boston, Mass	Int. Med., Path., Rad.
Lahey Clinic	Boston, Mass	Anes., Int. Med., Neuro. Surg., Ortho. Surg., Rad., Urol.
Massachusetts Eye and Ear Infirmary	Boston, Mass	Ophth., Otol.
Massachusetts General Hospital★	Boston, Mass	Allergy, Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Massachusetts Memorial Hospitals★	Boston, Mass	Anes., Con. Dis., Derm. Syph., Gastro., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
New England Center Hospital★	Boston, Mass	Anes., Int. Med., Neur., Neuro. Surg., Psych., Rad., Surg., Urol.
New England Deaconess Hospital	Boston, Mass	Anes., Int. Med., Path., Rad.
New England Hospital★	Boston, Mass	Anes., Obst.
Peter Bent Brigham Hospital★	Boston, Mass	Anes., Int. Med., Path., Rad., Surg., Urol.
St. Elizabeth Hospital★	Boston, Mass	Anes., Int. Med., Obst., Path., Psych., Rad., Surg.
St. Margaret's Hospital	Boston, Mass	Obst.
U. S. Public Health Service Hospital	Boston, Mass	Int. Med., Surg.
Veterans Admin. Hospital	Boston, Mass	Int. Med., Neur., Neuro. Surg., Otol., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	[illegible] Mass	Anes., Int. Med., Path., Phys. Med., Rad., Surg., Urol.
Booth Memorial Hospital and Home	Brookline, Mass	Obst.
Free Hospital for Women	Brookline, Mass	Gyn.
Cambridge City Hospital★	Cambridge, Mass	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Mount Auburn Hospital★	Cambridge, Mass	Anes., Int. Med., Path., Rad., Surg., Urol.
Massachusetts Hospital School	Canton, Mass	Ortho. Surg.
Lawrence F. Quigley *Memorial Hospital*	Chelsea, Mass	Int. Med., Surg.
U. S. Naval Hospital★	Chelsea, Mass	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Ped., Psych., Rad., Surg.
Fall River General Hospital, Tuberculosis Division	Fall River, Mass	Pul. Dis.
St. Anne's Hospital	Fall River, Mass	Gen'l Pract., Ob.-Gyn.
Truesdale Hospital★	Fall River, Mass	Int. Med., Surg.
Burbank Hospital	Fitchburg, Mass	Path., Surg.
Foxboro State Hospital	Foxboro, Mass	Psych.
Framingham Union Hospital	Framingham, Mass	Path.
Danvers State Hospital	Hathorne, Mass	Psych.
Holyoke Hospital	Holyoke, Mass	Path.
Lawrence General Hospital★	Lawrence, Mass	Path., Rad.
Lynn Hospital★	Lynn, Mass	Int. Med., Path., Rad., Surg.
Malden Hospital	Malden, Mass	Int. Med., Path., Surg.
Medfield State Hospital	Medfield, Mass	Psych.
St. Luke's Hospital★	New Bedford, Mass	Path.
Newton-Wellesley Hospital★	Newton, Mass	Anes., Int. Med., Path., Rad., Surg.
Cooley Dickenson Hospital	Northampton, Mass	Gen'l Pract.
Northampton State Hospital	Northampton, Mass	Psych.
Quincy City Hospital★	Quincy, Mass	Ob.-Gyn., Path., Surg.
Veterans Admin. Hospital	Rutland Heights, Mass	Pul. Dis.
Salem Hospital★	Salem, Mass	Int. Med., Path., Rad., Surg., Urol.
Shriners Hospital for Crippled Children	Springfield, Mass	Ortho. Surg.
Springfield Hospital★	Springfield, Mass	Anes., Int. Med., Path., Surg.
Austen Riggs Foundation	Stockbridge, Mass	Psych.
Taunton State Hospital	Taunton, Mass	Psych.
Pondville Hospital	Walpole, Mass	Path., Surg.
Metropolitan State Hospital	Waltham, Mass	Psych.
Middlesex County Sanatorium	Waltham, Mass	Pul. Dis.
Murphy Army Hospital★	Waltham, Mass	Surg.
McLean Hospital	Waverly, Mass	Psych.
Westfield State Sanatorium	Westfield, Mass	Mal. Dis., Pul. Dis., Surg.
Belmont Hospital	Worcester, Mass	Con. Dis., Pul. Dis.
Memorial Hospital★	Worcester, Mass	Anes., Int. Med., Path., Rad., Surg.
St. Vincent's Hospital★	"	Anes., Int. Med., Surg.
Worcester City Hospital★	"	Int. Med., Ortho. Surg., Path., Ped., Psych., Surg.
Worcester State Hospital	"	Psych.
St. Joseph Mercy Hospital★	"	Int. Med., Ob.-Gyn., Path., Rad., Surg.
University Hospital★	"	Allergy, Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
American Legion Hospital	Battle Creek, Mich	Pul. Dis.
Leila Y. Post Montgomery Hospital ★	[illegible]	Int. Med., Path., Rad., Surg.
Percy Jones Army Hospital ★	[illegible]	Int. Med., Surg.
St. Joseph's Retreat	[illegible]	Psych.
Veterans Admin. Hospital ★	Dearborn, Mich	Int. Med., Ophth., Ortho. Surg., Path., Psych., Rad., Surg.
Alexander Blain Hospital	Detroit, Mich	Int. Med., Surg.
Children's Hospital	Detroit, Mich	Ortho. Surg., Ped., Rad.
City of Detroit Receiving Hospital ★	Detroit, Mich	Anes., Derm. Syph., Int. Med., Gyn., Ophth., Otol., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Detroit Memorial Hospital ★	Detroit, Mich	Int. Med., Ob.-Gyn., Path., Surg.
Evangelical Deaconess Hospital ★	Detroit, Mich	Int. Med., Ob.-Gyn., Surg.
Florence Crittenton Hospital	Detroit, Mich	Int. Med., Ob.-Gyn., Surg.
Grace Hospital ★	Detroit, Mich	Int. Med., Neuro. Surg., Ob.-Gyn., Path., Rad., Surg., Urol.
Harper Hospital ★	Detroit, Mich	Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Henry Ford Hospital ★	Detroit, Mich	Anes., Card. Dis., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Pul. Dis., Rad., Surg., Urol.
Herman Kiefer Hospital	Detroit, Mich	Con. Dis., Obst., Path., Pul. Dis., Rad., Thor. Surg.
Jennings Memorial Hospital ★	Detroit, Mich	Int. Med., Rad., Surg.
Mount Carmel Mercy Hospital ★	Detroit, Mich	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Providence Hospital ★	Detroit, Mich	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
St. Joseph Mercy Hospital ★	Detroit, Mich	Int. Med., Ob.-Gyn., Surg.
Woman's Hospital ★	Detroit, Mich	Int. Med., Ob.-Gyn., Path., Surg.
Wayne County General Hospital and Infirmary ★	Eloise, Mich	Int. Med., Ophth., Path., Psych., Rad., Surg., Urol.
Hurley Hospital ★	Flint, Mich	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
McLaren General Hospital ★	Flint, Mich	Gen'l Pract., Int. Med., Surg.
St. Joseph Hospital ★	Flint, Mich	Gen'l Pract.
Veterans Admin. Hospital	Fort Custer, Mich	Psych.
Blodgett Memorial Hospital ★	Grand Rapids, Mich	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg., Urol.
Butterworth Hospital ★	Grand Rapids, Mich	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Ferguson-Droste-Ferguson Rectal Clinic and Hosp.	Grand Rapids, Mich	Proct.
St. Mary's Hospital ★	Grand Rapids, Mich	Int. Med., Ob.-Gyn., Ped., Surg.
Highland Park General Hospital ★	Highland Park, Mich	Int. Med., Surg.
Michigan State Sanatorium	[illegible]	Pul. Dis.
Borgess Hospital ★	[illegible]	Gen'l Pract., Ortho. Surg.
Bronson Methodist Hospital ★	[illegible]	Int. Med., Surg.
Kalamazoo State Hospital	[illegible]	Psych.
Edward W. Sparrow Hospital ★	Lansing, Mich	Int. Med., Path., Surg.
Ingham Sanatorium	Lansing, Mich	Pul. Dis., Thor. Surg.
St. Lawrence Hospital ★	Lansing, Mich	Int. Med.
Morgan Heights Sanatorium	Marquette, Mich	Pul. Dis.
Hackley Hospital ★	Muskegon, Mich	Rad.
Mercy Hospital	Muskegon, Mich	Gen'l Pract.
William H. Maybury Sanatorium	Northville, Mich	Pul. Dis.
Pontiac General Hospital ★	Pontiac, Mich	Int. Med., Ob.-Gyn., Surg.
Pontiac State [illegible]	Pontiac, Mich	Psych.
St. Joseph Me [illegible]	Pontiac, Mich	Gen'l Pract., Int. Med., Obst., Surg.
Saginaw Gener [illegible]	Saginaw, Mich	Int. Med., Ob.-Gyn., Occup. Med., Path., Ped., Surg.
St. Luke's Hospital ★	Saginaw, Mich	Gen'l Pract.
St. Mary's Hospital ★	Saginaw, Mich	Gen'l Pract.
James Decker Munson Hospital ★	[illegible]	Gen'l Pract.
Traverse City State Hospital	[illegible]	Psych.
Wyandotte General Hospital	[illegible]	Gen'l Pract.
Beyer Memorial Hospital	Ypsilanti, Mich	Rad.
Ypsilanti S [illegible]	[illegible]	Psych.
St. Luke's [illegible]	[illegible]	Path.
St. Mary's [illegible]	[illegible]	Int. Med., Path.
Hastings S [illegible]	Hastings, Minn	Psych.
Asbury Hospital ★	Minneapolis, Minn	Int. Med., Surg.
Fairview Hospital	Minneapolis, Minn	Gen'l Pract.
Lutheran Deaconess Home and Hospital ★	Minneapolis, Minn	Gen'l Pract.
Maternity Hospital	Minneapolis, Minn	Obst.
Minneapolis General Hospital ★	Minneapolis, Minn	Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Psych., Surg., Urol.
Mount Sinai Hospital ★	Minneapolis, Minn	Gen'l Pract., Int. Med., Surg.
Northwestern Hospital ★	Minneapolis, Minn	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
St. Barnabas Hospital ★	Minneapolis, Minn	Int. Med., Ob.-Gyn., Path., Ped., Surg.
St. Mary's Hospital ★	Minneapolis, Minn	Ob.-Gyn., Urol.
Shriners Hospital for Crippled Children	Minneapolis, Minn	Ortho. Surg.
Swedish Hospital ★	Minneapolis, Minn	Path., Rad., Surg.
University of Minnesota Hospitals ★	Minneapolis, Minn	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Proct., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Minneapolis, Minn	Derm. Syph., Int. Med., Neur., Neuro. Surg., Ophth., Otol., Ortho. Surg., Path., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Nopeming Sanatorium	Nopeming, Minn	Pul. Dis.
Glen Lake Sanatorium	Oak Terrace, Minn	Pul. Dis.
Mayo Foundation	Rochester, Minn	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Plas. Surg., Proct., Psych., Rad., Surg., Urol.
Rochester State Hospital	Rochester, Minn	Psych.
Ancker Hospital ★	St. Paul, Minn	Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Otol., Path., Surg., Urol.
Charles T. Miller Hospital ★	St. Paul, Minn	Int. Med. Ob.-Gyn., Ophth., Path., Rad., Surg., Urol.
Gillette State Hospital for Crippled Children	St. Paul, Minn	Ortho. Surg.
Midway Hospital	St. Paul, Minn	Gen'l Pract.
St. Joseph's Hospital ★	St. Paul, Minn	Int. Med., Path., Rad., Surg.
Veterans Admin. Hospital	Gulfport, Miss	Psych.
Mississippi Baptist Hospital ★	Jackson, Miss	Ortho. Surg.
Mississippi State Tuberculosis Sanatorium	Sanatorium, Miss	Pul. Dis.
Lutheran Hospital	Vicksburg, Miss	Surg.
Mercy Hospital-Street Memorial ★	Vicksburg, Miss	Gen'l Pract., Surg.
St. Louis County Hospital ★	Clayton, Mo	Int. Med., Ob.-Gyn., Ophth., Path., Surg.
Ellis Fischel Cancer Hospital	Columbia, Mo	Mal. Dis., Surg.
University Hospit [illegible]	Columbia, Mo	Ortho. Surg.
Veterans Admin. [illegible]	Excelsior Springs, Mo	Pul. Dis.
Veterans Admin. [illegible]	Jefferson Barracks, Mo	Anes., Int. Med., Ophth., Otol., Ortho. Surg., Path., Psych., Rad., Surg., Thor. Surg., Urol.
Children's Mercy Hospital	Kansas City, Mo	Ortho. Surg., Ped.
Kansas City General Hospital No. 1 ★	Kansas City, Mo	Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Kansas City General Hospital No. 2 ★	Kansas City, Mo	Ob.-Gyn., Rad., Surg.
Menorah Hospital Medical Center ★	Kansas City, Mo	Int. Med., Path., Rad., Surg.
Research Hospital ★	Kansas City, Mo	Anes., Int. Med., Path., Rad., Surg., Urol.
St. Joseph Hospital ★	Kansas City, Mo	Int. Med., Ob.-Gyn., Path., Rad., Surg.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
St. Luke's Hospital ★	Kansas City, Mo	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
St. Mary's Hospital ★	Kansas City, Mo	Int. Med., Path., Surg.
Robert Koch Hospital	Koch, Mo	Pul. Dis.
Missouri Methodist Hospital ★	St. Joseph, Mo	Gen'l Pract., Surg.
State Hospital No. 2	St. Joseph, Mo	Psych.
Alexian Brothers Hospital	St. Louis, Mo	Gen'l Pract.
Barnard Free Skin and Cancer Hospital	St. Louis, Mo	Derm. Syph., Mal. Dis., Rad.
Barnes Hospital ★	St. Louis, Mo	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Phys. Med., Plas. Surg., Psych., Rad., Surg., Thor. Surg., Urol.
De Paul Hospital ★	St. Louis, Mo	Int. Med., Ob.-Gyn., Rad., Surg.
Homer G. Phillips Hospital ★	St. Louis, Mo	Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Jewish Hospital ★	St. Louis, Mo	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Missouri Baptist Hospital ★	St. Louis, Mo	Int. Med., Ob.-Gyn., Path., Surg., Urol.
Missouri Pacific Hospital	St. Louis, Mo	Int. Med., Surg., Urol.
St. Anthony's Hospital ★	St. Louis, Mo	Gen'l Pract., Int. Med., Surg.
St. John's Hospital ★	St. Louis, Mo	Anes., Int. Med., Obst., Surg.
St. Louis Children's Hospital ★	St. Louis, Mo	Otol., Ped., Surg.
St. Louis City Hospital ★	St. Louis, Mo	Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad , Surg., Urol.
St. Louis State Hospital	St. Louis, Mo	Psych.
St. Luke's Hospital ★	St. Louis, Mo	Int. Med., Ob.-Gyn., Rad., Surg.
St. Mary's Group of Hospitals ★	St. Louis, Mo	Anes., Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Pul. Dis., Rad., Surg., Urol.
Shriners Hospital for Crippled Children	St. Louis, Mo	Ortho. Surg.
Montana Deaconess Hospital ★	Great Falls, Mont	Int. Med., Path.
Hastings State Hospital	Ingleside, Neb	Psych.
Lincoln General Hospital ★	Lincoln, Neb	Ob.-Gyn., Path.
Nebraska Orthopedic Hospital	Lincoln, Neb	Ortho. Surg.
St. Elizabeth's Hospital ★	Lincoln, Neb	Obst.
Veterans Admin. Hospital	Lincoln, Neb	Int. Med., Ortho. Surg., Surg., Urol.
Norfolk State Hospital	Norfolk, Neb	Psych.
Bishop Clarkson Memorial Hospital ★	Omaha, Neb	Ob.-Gyn., Path.
Creighton Memorial St. Joseph Hospital ★	Omaha, Neb	Int. Med., Ob.-Gyn., Path., Ped., Psych., Rad., Surg.
Immanuel Deaconess Hospital	Omaha, Neb	Ob.-Gyn.
Lutheran Hospital	Omaha, Neb	Psych.
Nebraska Methodist Hospital ★	Omaha, Neb	Path., Rad.
St. Catherine's Hospital ★	Omaha, Neb	Rad.
University of Nebraska Hospital ★	Omaha, Neb	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg.
Veterans Admin. Hospital	Omaha, Neb	Int. Med., Psych., Surg.
New Hampshire State Hospital	Concord, N. H	Psych.
Mary Hitchcock Memorial Hospital ★	Hanover, N. H	Anes., Derm. Syph., Int. Med., Path., Ped., Rad., Surg.
Elliott Hospital	Manchester, N. H	Path.
Atlantic City Hospital ★	Atlantic City, N. J	Int. Med., Path., Rad., Surg., Urol.
Bayonne Hospital and Dispensary ★	Bayonne, N. J	Urol.
Essex County Hospital for Contagious Diseases	Belleville, N. J	Con. Dis.
Camden Municipal Hospital	Camden, N. J	Con. Dis.
Cooper Hospital ★	Camden, N. J	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
West Jersey Hospital ★	Camden, N. J	Anes., Path., Surg.
Essex County Overbrook Hospital	Cedar Grove, N. J	Psych.
Englewood Hospital ★	Englewood, N. J	Int. Med.
Hunterdon Medical Center	Flemington, N. J	Gen'l Pract.
New Jersey Sanatorium for Tuberculosis Diseases	Glen Gardner, N. J	Pul. Dis.
New Jersey State Hospital	Greystone Park, N. J	Psych.
Hackensack Hospital ★	Hackensack, N. J	Int. Med., Surg.
Berthold S. Pollock Hospital for Chest Diseases	Jersey City, N. J	Pul. Dis., Thor. Surg.
Medical Center-Jersey City Hospital	Jersey City, N. J	Anes., Int. Med., Gyn., Ophth., Otol., Path., Ped., Rad., Surg., Urol.
Margaret Hague Maternity Hospital	Jersey City, N. J	Obst.
Monmouth Memorial Hospital ★	Long Branch, N. J	Int. Med., Obst., Ortho. Surg., Path., Surg.
Veterans Admin. Hospital	Lyons, N. J	Psych.
New Jersey State Hospital	Marlboro, N. J	Psych.
Mountainside Hospital ★	Montclair, N. J	Int. Med., Path.
Morristown Memorial Hospital	Morristown, N. J	Path.
Burlington County Hospital	Mount Holly, N. J	Int. Med., Path., Rad., Surg.
Fitkin Memorial Hospital ★	Neptune, N. J	Int. Med., Surg.
Babies' Hospital-Coit Memorial	[illegible]	Ped.
Hospital and Home for Crippled Children	[illegible]	Ortho. Surg.
Hospital of St. Barnabas and for Women and Children ★	Newark, N. J	Path., Plas. Surg., Rad., Surg.
Newark Beth Israel Hospital ★	[illegible]	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Newark City Hospital ★	[illegible]	Int. Med., Otol., Path., Rad., Surg., Urol.
Newark Eye and Ear Infirmary	[illegible]	Ophth.
Presbyterian Hospital ★	[illegible]	Path., Surg.
St. Michael's Hospital ★	[illegible]	Int. Med., Obst., Path., Ped.
St. Peter's General Hospital ★	[illegible]	Int. Med.
New Jersey Orthopedic Hospital and Dispensary	[illegible]	Ortho. Surg.
Orange Memorial Hospital ★	Orange, N. J	Anes., Int. Med., Ortho. Surg., Path., Rad., Surg., Urol.
Bergen Pines County Hospital ★	Paramus, N. J	Pul. Dis.
Passaic General Hospital ★	Passaic, N. J	Path.
St. Mary Hospital	Passaic, N. J	Path.
Paterson General Hospital ★	Paterson, N. J	Int. Med., Obst., Path.
St. Joseph Hospital ★	Paterson, N. J	Anes., Path.
Muhlenberg Hospital ★	Plainfield, N. J	Path.
Holy Name Hospital ★	Teaneck, N. J	Ob.-Gyn.
Mercer Hospital ★	Trenton, N. J	Int. Med., Path., Rad., Surg.
New Jersey State Hospital	Trenton, N. J	Psych.
Orthopedic Hospital and Dispensary	Trenton, N. J	Ortho. Surg.
St. Francis Hospital ★	Trenton, N. J	Int. Med., Surg.
Essex Mountain Sanatorium	Verona, N. J	Pul. Dis.
Veterans Admin. Hospital	Albuquerque, N. M	Int. Med., Path., Pul. Dis., Surg.
Carrie Tingley Hospital for Crippled Children	Truth or Consequences, N. M	Ortho. Surg.
Albany Hospital ★	Albany, N. Y	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Urol.
Anthony N. Brady Maternity Hospital	Albany, N. Y	Obst.
Bender Hygienic Laboratory	Albany, N. Y	Path.
St. Peter's Hospital ★	Albany, N. Y	Ped.
Veterans Admin. Hospital	Albany, N. Y	Int. Med., Path., Surg.
Veterans Admin. Hospital	Bath, N. Y	Int. Med.
Montefiore Hospital	Bedford Hills, N. Y	Pul. Dis.
Binghamton City Hospital ★	Binghamton, N. Y	Int. Med., Ortho. Surg., Path., Rad., Surg.
Binghamton State Hospital	Binghamton, N. Y	Psych.
Beth-El Hospital ★	Brooklyn, N. Y	Anes., Int. Med., Ob.-Gyn., Path., Ped., Surg.
Brooklyn Eye and Ear Hospital	Brooklyn, N. Y	Ophth., Otol.
Brooklyn Hospital ★	Brooklyn, N. Y	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Brooklyn State Hospital	Brooklyn, N. Y	Psych.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
Brooklyn Womens Hospital	Brooklyn, N. Y.	Ob.-Gyn.
Coney Island Hospital★	Brooklyn, N. Y.	Int. Med., Ob.-Gyn., Path., Ped., Surg.
Cumberland Hospital★	Brooklyn, N. Y.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Greenpoint Hospital★	Brooklyn, N. Y.	Int. Med., Ob.-Gyn., Path., Ped., Surg.
House of St. Giles the Cripple	Brooklyn, N. Y.	Ortho. Surg.
Jewish Hospital★	Brooklyn, N. Y.	Allergy, Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Jewish Sanitarium and Hospital for Chronic Disea	Brooklyn, N. Y.	Int. Med., Neur.
John I	Brooklyn, N. Y.	Rad., Surg.
Kings		
County Service	Brooklyn, N. Y.	Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol, Ortho. Surg., Path., Ped., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Urol.
University Service	Brooklyn, N. Y.	Ob.-Gyn., Ped., Surg., Thor. Surg.
Kingston Avenue	Brooklyn, N. Y.	Con. Dis., Pul. Dis.
Long Island Coll	Brooklyn, N. Y.	Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Maimonides Hospital★	Brooklyn, N. Y.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Methodist Hospital★	Brooklyn, N. Y.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Norwegian Lutheran Deaconesses' Home and Hospital★	Brooklyn, N. Y.	Int. Med., Ob.-Gyn., Path., Ped., Surg.
St. Catherine's Hospital★	Brooklyn, N. Y.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Surg.
St. Charles Hospital	Brooklyn, N. Y.	Ortho. Surg.
St. John's Episcopal	Brooklyn, N. Y.	Int. Med., Ob.-Gyn., Ped., Surg.
St. Mary's Hospital★	Brooklyn, N. Y.	Int. Med., Ob.-Gyn., Path., Ped., Surg.
Unity Hospital★	Brooklyn, N. Y.	Ob.-Gyn.
Veterans Admin. Hospital	Brooklyn, N. Y.	Anes., Int. Med., Neur., Ophth., Otol., Ortho. Surg., Path., Psych., Rad., Surg., Thor. Surg., Urol.
Wyckoff Heights Hospital★	Brooklyn, N. Y.	Int. Med., Ob.-Gyn., Ped., Surg.
Buffalo General Hospital★	Buffalo, N. Y.	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Rad., Surg., Urol.
Buffalo State Hospital	Buffalo, N. Y.	Psych.
Children's Hospital	Buffalo, N. Y.	Obst., Ortho. Surg., Ped., Surg.
Deaconess Hospital★	Buffalo, N. Y.	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Edward J. Meyer Memorial Hospital★	Buffalo, N. Y.	Anes., Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Emergency Hospital of the Sisters of Charity	Buffalo, N. Y.	Int. Med., Surg.
Millard Fillmore Hospital★	Buffalo, N. Y.	Anes., Gen'l Pract., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Path., Proct., Surg., Urol.
Roswell Park Memorial Institute	Buffalo, N. Y.	Mal. Dis., Rad.
Sisters of Charity Hospital★	Buffalo, N. Y.	Int. Med., Ob.-Gyn., Surg.
Veterans Admin.	Buffalo, N. Y.	Anes., Int. Med., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Mary McClellan	Cambridge, N. Y.	Surg.
Veterans Admin.	Canandaigua, N. Y.	Psych.
Veterans Admin.	Castle Point, N. Y.	Pul. Dis., Thor. Surg.
Central Islip St	Central Islip, N. Y.	Psych
Clifton Springs S [illegible] and Clinic	Clifton Springs, N. Y.	Int. Med., Rad., Surg.
Mary Imogene Bassett Hospital★	Cooperstown, N. Y.	Int. Med., Ped., Surg.
Nassau C	Farmingdale, N. Y.	Pul. Dis.
St. Josepl	Far Rockaway, N. Y.	Gen'l Pract.
Flushing	Flushing, N. Y.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Surg.
Hillside Hospital	Glen Oaks, N. Y.	Psych.
Gowanda State Homeopathic Hospital	Helmuth, N. Y.	Psych.
Meadowbrook Hospital★	Hempstead, N. Y.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Psych., Rad., Surg.
Irvington House	Irvington, N. Y.	Card. Dis.
Cornell University	Ithaca, N. Y.	Int. Med.
Tompkins Memor	Ithaca, N. Y.	Int. Med.
Herman M. Biggs	Ithaca, N. Y.	Pul. Dis.
Jamaica Hospital★	Jamaica, N. Y.	Surg.
Mary Immaculat	Jamaica, N. Y.	Anes., Int. Med., Obst., Path., Ped., Surg.
Queens General	Jamaica, N. Y.	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Triboro Hospital	Jamaica, N. Y.	Pul. Dis., Thor. Surg.
Charles S. Wilson Memorial Hospital★	Johnson City, N. Y.	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Pine Wood	Katonah, N. Y.	Psych.
Kings Park	Kings Park, N. Y.	Psych.
Benedictine	Kingston, N. Y.	Gen'l Pract.
Kingston Hospital	Kingston, N. Y.	Gen'l Pract.
Our Lady of Victory Hospital★	Lackawanna, N. Y.	Gen'l Pract.
Niagara Sanatorium	Lockport, N. Y.	Pul. Dis.
River Crest Sanitarium	Long Island City, N. Y.	Psych.
St. John's Long Island City Hospital★	Long Island City, N. Y.	Path.
Marcy State Hospital	Marcy, N. Y.	Psych.
Middletown State Homeopathic Hospital	Middletown, N. Y.	Psych.
Nassau Hospital★	Mineola, N. Y.	Obst., Ortho. Surg., Path., Surg.
Veterans Admin.	Montrose, N. Y.	Psych.
Mount Morris Tub	Mount Morris, N. Y.	Pul. Dis.
Mount V	Mount Vernon, N. Y.	Int. Med., Obst., Path., Rad., Surg.
New Rocl	New Rochelle, N. Y.	Int. Med., Path., Rad., Surg.
Bellevue		
Div. I—	New York City, N. Y.	Int. Med., Pul. Dis., Surg., Thor. Surg.
Div. II-	New York City, N. Y.	Int. Med., Neur., Neuro. Surg., Surg., Urol.
Div. III—New York University College of Medicine★	New York City, N. Y.	Int. Med., Neur., Ob.-Gyn., Path., Ped., Phys. Med., Psych., Rad., Surg.
Div. IV—New York University Post-Graduate Medical School★	New York City, N. Y.	Anes., Derm. Syph., Int. Med., Neuro. Surg., Ophth., Otol., Ortho. Surg., Rad., Surg.
Beth David Hospital★	New York City, N. Y.	Int. Med., Ob.-Gyn., Rad., Surg.
Beth Israel Hospital★	New York City, N. Y.	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Path., Ped., Plas. Surg., Rad., Surg., Urol.
Bronx Eye and Ear Infirmary	New York City, N. Y.	Ophth.
Bronx Hospital★	New York City, N. Y.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Doctors Hospital	New York City, N. Y.	Path., Rad.
Flower and Fifth Avenue Hospitals	New York City, N. Y.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg.
Fordham Hospital★	New York City, N. Y.	Int. Med., Ob.-Gyn., Path., Ped., Surg.
Francis Delafield Hospital	New York City, N. Y.	Gyn., Int. Med., Rad., Surg., Urol.
French Hospital★	New York City, N. Y.	Int. Med., Ob.-Gyn., Rad., Surg., Urol.
Goldwater Memorial Hospital	New York City, N. Y.	Int. Med., Neur., Ophth., Path., Phys. Med., Rad., Surg.
Gouverneur Hospital	New York City, N. Y.	Surg.
Harlem Eye and Ear Hospital	New York City, N. Y.	Ophth.
Harlem Hospital★	New York City, N. Y.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Hospital for Joint Diseases★	New York City, N. Y.	Anes., Int. Med., Gyn., Ortho. Surg., Path., Phys. Med., Rad.
Hospital for Special Surgery	New York City, N. Y.	Anes., Int. Med., Ortho. Surg., Phys. Med.
Jewish Memorial Hospital★	New York City, N. Y.	Int. Med., Ob.-Gyn., Path., Surg.
Knickerbocker Hospital★	New York City, N. Y.	Int. Med., Surg.
Lebanon Hospital★	New York City, N. Y.	Int. Med., Path., Surg.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
Lenox Hill Hospital★	New York City, N. Y.	Anes., Card. Dis., Gastro., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Pul. Dis., Rad., Surg.
Lincoln Hospital	New York City, N. Y.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Manhattan Eye, Ear and Throat Hospital	New York City, N. Y.	Ophth., Otol.
Manhattan General Hospital	New York City, N. Y.	Pul. Dis.
Manhattan State Hospital	New York City, N. Y.	Psych.
Memorial Center for Cancer and Allied Diseases	New York City, N. Y.	Anes., Int. Med., Path., Rad., Surg.
Metropolitan Hospital★	New York City, N. Y.	Anes., Derm. Syph., Int. Med., Mal. Dis., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Phys. Med., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Misericordia Hospital★	New York City, N. Y.	Obst., Ped.
Montefiore Hospital★	New York City, N. Y.	Anes., Int. Med., Mal. Dis., Neur., Ophth., Path., Pul. Dis., Rad., Surg.
Morrisania City Hospital★	New York City, N. Y.	Int. Med., Neur., Ob.-Gyn., Path., Ped., Pul. Dis., Rad., Surg., Urol.
Mother Cabrini Memorial Hospital★	New York City, N. Y.	Surg.
Mount Sinai Hospital★	New York City, N. Y.	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
New York City Hospital★	New York City, N. Y.	Anes., Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth., Otol., Path., Ped., Phys. Med., Pul. Dis., Rad., Surg., Urol.
New York Eye and Ear Infirmary	New York City, N. Y.	Ophth., Otol.
New York Foundling Hospital	New York City, N. Y.	Ped.
New York Hospital★	New York City, N. Y.	Allergy, Anes., Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
New York Infirmary★	New York City, N. Y.	Int. Med., Obst., Ped., Surg.
New York Polyclinic Medical School and Hospital★	New York City, N. Y.	Anes., Derm. Syph., Gastro., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Rad., Surg., Urol.
New York State Psychiatric Institute and Hospital	New York City, N. Y.	Psych.
New York University-Bellevue Medical Center University Hospital★	New York City, N. Y.	Allergy, Anes., Derm. Syph., Int. Med., Gyn., Path., Ped., Psych., Rad.
Presbyterian Hospital★	New York City, N. Y.	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Plas. Surg., Rad., Surg., Urol.
Roosevelt Hospital★	New York City, N. Y.	Allergy, Int. Med., Gyn., Otol., Path., Ped., Psych., Rad., Surg., Urol.
St. Barnabas Hospital for Chronic Diseases	New York City, N. Y.	Int. Med., Path.
St. Clare's Hospital★	New York City, N. Y.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Surg., Urol.
St. Francis Hospital★	New York City, N. Y.	Int. Med., Ob.-Gyn., Surg.
St. Joseph Hospital for Chest Diseases	New York City, N. Y.	Pul. Dis., Thor. Surg.
St. Luke's Hospital★	New York City, N. Y.	Anes., Card. Dis., Derm. Syph., Int. Med., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Rad., Surg., Urol.
St. Vincent's Hospital★	New York City, N. Y.	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Path., Ped., Rad., Surg.
Seton Hospital	New York City, N. Y.	Pul. Dis., Thor. Surg.
Sydenham Hospital★	New York City, N. Y.	Anes., Int. Med., Ob.-Gyn., Ped., Rad., Surg.
Veterans Admin. Hospital	New York City, N. Y.	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ophth., Otol., Ortho. Surg., Path., Phys. Med., Plast. Surg., Psych., Rad., Surg., Thor. Surg., Urol.
Willard Parker Hospital	New York City, N. Y.	Con. Dis., Path., Pul. Dis.
Woman's Hospital	New York City, N. Y.	Ob.-Gyn.
St. Lawrence	Ogdensburgh, N. Y.	Psych.
Homer Folks	Oneonta, N. Y.	Pul. Dis., Thor. Surg.
Rockland Stat	Orangeburg, N. Y.	Psych.
Stony Loc	Ossining, N. Y.	Psych.
Municipal	Otisville, N. Y.	Pul. Dis.
High Point Hospital	Port Chester, N. Y.	Psych.
United Hospital★	Port Chester, N. Y.	Int. Med., Obst., Path., Rad., Surg.
St. Charles Hospital for Crippled Children	Port Jefferson, N. Y.	Ortho. Surg.
Hudson River State Hospital	Poughkeepsie, N. Y.	Psych.
Vassar Brother Hospital★	Poughkeepsie, N. Y.	Gen'l Pract.
Creedmoor State Hospital	Queens Village, N. Y.	Psych.
Raybrook State Tuberculosis Hospital	Raybrook, N. Y.	Pul. Dis., Thor. Surg.
Genesee Hospital★	Rochester, N. Y.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Highland Hospital★	Rochester, N. Y.	Anes., Int. Med., Obst., Surg.
Iola-Monroe County Tuberculosis Sanatorium	Rochester, N. Y.	Pul. Dis.
Rochester General Hospital★	Rochester, N. Y.	Anes., Int. Med., Obst., Ortho. Surg., Path., Ped., Rad., Surg.
Rochester State Hospital	Rochester, N. Y.	Psych.
St. Mary's Hospital★	Rochester, N. Y.	Int. Med., Ophth., Path., Rad., Surg.
Strong Memorial-Rochester Municipal Hospitals★	Rochester, N. Y.	Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
St. Francis Sanatorium for Cardiac Children	Roslyn, L. I., N. Y.	Card. Dis.
U. S. Naval Hospital★	St. Albans, N. Y.	Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Psych., Rad., Surg., Thor. Surg., Urol.
Ellis Hospital★	Schenectady, N. Y.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Psych., Rad., Surg.
Schenectady Cou	Schenectady, N. Y.	Pul. Dis.
U. S. Public Hea Hospital	Stapleton (Staten Island), N. Y.	Anes., Derm. Syph., Int. Med., Ophth., Ortho. Surg., Path., Rad., Surg., Urol.
St. Vincent's Hospital★	Staten Island, N. Y.	Int. Med., Ortho. Surg., Ped.
Sea View Hospital	Staten Island, N. Y.	Ophth., Ortho. Surg., Ped., Pul. Dis., Rad., Thor. Surg., Urol.
Staten Island Hospital★	Staten Island, N. Y.	Int. Med., Path.
Veterans Admin. Hospital	Sunmount, N. Y.	Pul. Dis.
General Hospital★	Syracuse, N. Y.	Ob.-Gyn.
St. Joseph's Hospital★	Syracuse, N. Y.	Ob.-Gyn., Path., Ped.
State University of New York Medical Center★	Syracuse, N. Y.	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Path., Ped., Rad., Surg.
Syracuse Psychopathic Hospital	Syracuse, N. Y.	Psych.
Letchworth Village	Theills, N. Y.	Psych.
Samaritan Hospital★	Troy, N. Y.	Path.
Trudeau Sanatorium	Trudeau, N. Y.	Pul. Dis.
Utica State Hospital	Utica, N. Y.	Psych.
Grasslands Hospital★	Valhalla, N. Y.	Anes., Int. Med., Ophth., Path., Ped., Psych., Pul. Dis., Rad., Surg.
Pilgrim State Hospital	West Brentwood, N. Y.	Psych.
Rehabilitation Hospital	West Haverstraw, N. Y.	Ortho. Surg., Phys. Med.
New York Hospital-Westchester Division	White Plains, N. Y.	Psych.
White Plains Hospital★	White Plains, N. Y.	Int. Med., Surg.
Willard State Hospital	Willard, N. Y.	Psych.
Harlem Valley State Hospital	Wingdale, N. Y.	Psych.
St. John's Riverside Hospital★	Yonkers, N. Y.	Rad.
North Carolina Memorial Hospital★	Chapel Hill, N. C.	Int. Med., Neur., Ob.-Gyn., Path., Ped., Psych., Surg.
Charlotte Memorial Hospital★	Charlotte, N. C.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Duke Hospital★	Durham, N. C.	Allergy, Anes., Card. Dis., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Lincoln Hospital★	Durham, N. C.	Surg.
McPherson Hospital	Durham, N. C.	Ophth., Otol.
Watts Hospital★	Durham, N. C.	Int. Med., Obst., Path., Ped., Rad., Surg., Urol.

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Name of Hospital	Location	Approved Residencies
U. S. Army	Fort Bragg, N. C.	Surg.
North Carol	Gastonia, N. C.	Ortho. Surg.
North Caroli Tuberculosis	McCain, N. C.	Pul. Dis.
Veterans Admin. Hospital	Oteen, N. C.	Path., Pul. Dis., Thor. Surg.
Rex Hospital★	Raleigh, N. C.	Int. Med., Ob.-Gyn., Ped., Surg.
St. Agnes Hospital	Raleigh, N. C.	Ob.-Gyn.
State Hospital	Raleigh, N. C.	Psych.
Babies Hospita	Wilmington, N. C.	Ped.
James Walker	Wilmington, N. C.	Int. Med., Surg.
City Memorial	Winston-Salem, N. C.	Int. Med., Ob.-Gyn., Ped., Surg.
Kate Bitting Reynolds Memorial Hospital★	Winston-Salem, N. C.	Int. Med., Surg.
North Carolina Baptist Hospital★	Winston-Salem, N. C.	Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.
Bismarck Hospital	Bismarck, N. D.	Int. Med., Rad., Surg.
St. Luke's Hospital★	Fargo, N. D.	Int. Med., Ob.-Gyn., Surg.
Children's Hospital	Akron, Ohio	Ortho. Surg., Ped., Surg.
City Hospital★	Akron, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
Peoples Hospital★	Akron, Ohio	Gen'l Pract. Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Thomas Hospital★	Akron, Ohio	Int. Med., Ob.-Gyn., Surg.
Veterans Admin. Hospital	Brecksville, Ohio	Pul. Dis.
Aultman Hospital★	Canton, Ohio	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Mercy Hospital★	Canton, Ohio	Anes., Gen'l Pract., Int. Med., Ob.-Gyn., Rad., Surg.
Windsor Hospital	[illegible]	Psych.
Bethesda Hospital★	[illegible]	Ob.-Gyn., Path.
Children's Hospital	[illegible]	Ortho. Surg., Ped., Surg.
Christ Hospital★	[illegible]	Anes., Gen'l Pract., Int. Med., Neuro. Surg., Path., Psych., Surg.
Cincinnati General Hospital★	[illegible]	Card. Dis., Derm. Syph., Int. Med., Neur., Neuro. Surg., Obst., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Deaconess Hospital★	Cincinnati, Ohio	Int. Med., Surg.
Good Samaritan Hospital★	Cincinnati, Ohio	Gen'l Pract., Int. Med., Neuro. Surg., Path., Ped., Rad., Surg.
Jewish Hospital★	Cincinnati, Ohio	Int. Med., Ortho. Surg., Path., Rad., Surg.
Longview S	Cincinnati, Ohio	Psych.
St. Mary's	Cincinnati, Ohio	Int. Med., Surg.
City Hospital★	Cleveland, Ohio	Con. Dis., Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Cleveland Clinic Hospital	Cleveland, Ohio	Anes., Card. Dis., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Fairview Park Hospital★	Cleveland, Ohio	Int. Med., Obst., Surg.
Lutheran Hospital★	Cleveland, Ohio	Int. Med., Obst., Path., Rad., Surg.
Mount Sinai Hospital★	Cleveland, Ohio	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
St. Alexis Hospital★	Cleveland, Ohio	Int. Med., Surg.
St. Anne's Maternity Hospital	Cleveland, Ohio	Obst.
St. John's Hospital★	Cleveland, Ohio	Int. Med., Ob.-Gyn., Surg.
St. Luke's Hospital★	Cleveland, Ohio	Anes., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Rad., Surg.
St. Vincent Charity Hospital★	Cleveland, Ohio	Int. Med., Path., Rad., Surg.
University Hospitals★	Cleveland, Ohio	Anes., Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Cleveland, Ohio	Int. Med., Neur., Neuro. Surg., Ophth., Ortho. Surg., Path., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
Benjamin Franklin Hospital	Columbus, Ohio	Pul. Dis., Thor. Surg.
Children's Hospital	Columbus, Ohio	Ortho. Surg., Path., Ped., Surg.
Columbus State Hospital	Columbus, Ohio	Psych.
Grant Hospital★	Columbus, Ohio	Path.
Mount Carmel Hospital★	Columbus, Ohio	Int. Med., Obst., Ortho. Surg., Surg.
University Hospitals		
Columbus Receiving Hospital	Columbus, Ohio	Psych.
Ohio Tuberculosis Hospital	Columbus, Ohio	Psych., Pul. Dis., Thor. Surg.
St. Francis Hospital	Columbus, Ohio	Int. Med., Surg.
University Hospital★	Columbus, Ohio	Anes., Card. Dis., Gastro., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
St. Anne's Maternity Hospital	Columbus, Ohio	Obst.
White Cross Hospital★	Columbus, Ohio	Card. Dis., Gen'l Pract., Int. Med., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Path., Surg.
Good Samaritan Hospital★	Dayton, Ohio	Ob.-Gyn., Surg.
Miami Valley Hospital★	Dayton, Ohio	Int. Med., Obst., Path., Rad., Surg.
St. Elizabeth Hospital★	Dayton, Ohio	Rad., Surg.
Veterans Admin. Hospital	Dayton, Ohio	Int. Med., Path., Rad., Surg., Urol.
Huron Road Hospital★	East Cleveland, Ohio	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg., Urol.
Elyria Memorial Hospital and Gates Hospital for Crippled Children★	Elyria, Ohio	Ortho. Surg.
Euclid-Glenville Hospital★	Euclid, Ohio	Gen'l Pract.
Marymount Hospital★	Garfield Heights, Ohio	Anes., Int. Med., Ob.-Gyn., Surg.
Mercy Hospital★	Hamilton, Ohio	Path., Surg.
Lakewood Hospital★	Lakewood, Ohio	Int. Med., Obst., Surg.
Lima Memorial Hospital★	Lima, Ohio	Gen'l Pract.
St. Rita's Hospital★	Lima, Ohio	Gen'l Pract., Int. Med., Obst., Path., Surg.
Mansfield Genera	Mansfield, Ohio	Surg.
Massillon State	Massillon, Ohio	Psych.
Maumee Valley Hospital★	Toledo, Ohio	Int. Med., Obst., Surg.
Mercy Hospital★	Toledo, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Surg.
St. Vincent's Hospital★	Toledo, Ohio	Gen'l Pract., Int. Med., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg., Urol.
Toledo Hospital★	Toledo, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Surg.
Sunny Acres, Cuyahoga County Tuberculosis Hospital	Warrensville, Ohio	Pul. Dis.
Harding Sanitarium	Worthington, Ohio	Psych.
Mahoning County Tuberculosis Sanatorium	Youngstown, Ohio	Pul. Dis.
St. Elizabeth Hospital★	Youngstown, Ohio	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Youngstown Hospital★	Youngstown, Ohio	Anes., Int. Med., Ortho. Surg., Path., Proct., Rad., Surg.
Central Oklahoma State Hospital	Norman, Okla	Psych.
Bone and Joint Hospital and McBride Clinic	Oklahoma City, Okla	Ortho. Surg.
St. Anthony Hospital★	Oklahoma City, Okla	Int. Med., Ob.-Gyn., Ortho. Surg., Surg.
University Hospitals★	Oklahoma City, Okla	Anes., Derm. Syph., Gen'l Pract., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Plast. Surg., Rad., Surg., Urol.
Veterans Admin. Hospital★	Oklahoma City, Okla	Int. Med., Ortho. Surg., Rad., Surg.
Wesley Hospital★	Oklahoma City, Okla	Int. Med., Ob.-Gyn., Rad., Surg.
Hillcrest Medical Center	Tulsa, Okla	Int. Med., Path., Ped., Surg., Urol.
St. John's Hospital★	Tulsa, Okla	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Emanuel Hospital★	Portland, Ore	Int. Med., Ob.-Gyn., Ortho. Surg., Path.; Surg.
Good Samaritan Hospital★	Portland, Ore	Int. Med., Path.
Providence Hospital★	Portland, Ore	Int. Med., Path., Surg.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
St. Vincent's Hospital★	Portland, Ore	Int. Med., Obst., Path., Rad., Surg., Urol.
Shriners Hospital for Crippled Children	Portland, Ore	Ortho. Surg.
University of Oregon Medical School Hospitals and Clinics★	Portland, Ore	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Veterans Admin. Hospital	Portland, Ore	Anes., Int. Med., Otol., Ortho. Surg., Phys. Med., Rad., Surg., Urol.
Oregon St	Salem, Ore	Psych.
Abington	Abington, Pa	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Allentown	Allentown, Pa	Int. Med., Ob.-Gyn., Path., Plas. Surg., Proct., Surg., Urol.
Allentown State Hospital	Allentown, Pa	Psych.
Sacred Heart Hospital★	Allentown, Pa	Int. Med., Path., Surg.
Veterans Admin. Hospital	Aspinwall, Pa	Allergy, Derm. Syph., Int. Med., Ophth., Otol., Path., Phys. Med., Rad., Surg., Urol.
St. Luke's Hospital★	Bethlehem, Pa	Int. Med., Ob.-Gyn., Path., Surg.
Bradford Hospital	Bradford, Pa	Gen'l Pract., Surg.
Bryn Mawr Hospital★	Bryn Mawr, Pa	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Veterans Admin. Hospital	Coatesville, Pa	Neuro., Psych.
Danville State Hospital	Danville, Pa	Psych.
George F. Geisinger Memorial Hospital★	Danville, Pa	Int. Med., Obst., Ophth., Otol., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Fitzgerald-Mercy Hospital★	Darby, Pa	Ob.-Gyn., Path.
Eagleville Sanatorium for Consumptives	Eagleville, Pa	Pul. Dis.
Easton Hospital★	Easton, Pa	Int. Med., Surg.
State Hospital for Crippled Children	Elizabethtown, Pa	Ortho. Surg.
Embreeville State Hospital	Embreeville, Pa	Psych.
Hamot Hospital★	Erie, Pa	Int. Med., Ortho. Surg., Path., Surg.
St. Vincent's Hospital★	Erie, Pa	Path., Rad., Surg., Urol.
Westmoreland Hospital	Greensburg, Pa	Int. Med.
Pennsylvania State Sanatorium for Tuberculosis	Hamburg, Pa	Pul. Dis.
Harrisburg Hospital★	Harrisburg, Pa	Int. Med., Ob.-Gyn., Surg., Urol.
Harrisburg Polyclinic Hospital★	Harrisburg, Pa	Int. Med., Surg.
Harrisburg State Hospital	Harrisburg, Pa	Psych.
Hazelton State Hospital	Hazleton, Pa	Surg.
Lancaster General Hospital	Lancaster, Pa	Path.
St. Joseph's Hospital★	Lancaster, Pa	Gen'l Pract., Path., Surg.
Norristown State Hospital	Norristown, Pa	Psych.
Albert Einstein Medical Center		
Northern Division★	Philadelphia, Pa	Anes., Int. Med., Gyn., Path., Ped., Rad., Surg.
Southern Division★	Philadelphia, Pa	Anes., Int. Med., Ob.-Gyn., Path., Ped., Psych., Rad., Surg., Urol.
American Oncologic Hospital	Philadelphia, Pa	Mal. Dis., Rad.
Chestnut Hill Hospital	Philadelphia, Pa	Rad.
Children's Hospital	Philadelphia, Pa	Ortho. Surg., Ped., Surg.
Children's Hospital of the Mary J. Drexel Home	[illegible]	Ped.
Doctors Hospital		Surg.
Episcopal Hospital★		Int. Med., Ob.-Gyn., Path., Rad., Surg., Thor. Surg., Urol.
Frankford Hospital★		Ob.-Gyn., Path., Rad., Surg.
Friends Hospital		Psych.
Germantown Hospital and Dispensary★		Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Graduate Hospital of the University of Pennsylvania★	Philadelphia, Pa	Anes., Card. Dis., Derm. Syph., Gastro., Gyn., Int. Med., Neur., Neuro. Surg., Ophth., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Rad., Surg., Urol.
Hahnemann Medical College and Hospital★	Philadelphia, Pa	Anes., Derm. Syph., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Hospital of the University of Pennsylvania★	Philadelphia, Pa	Anes., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Hospital of the Women's Medical College of Pennsylvania★	[illegible]	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Institute of the Pennsylvania Hospital		Psych.
Jeanes Hospital		Mal. Dis., Rad.
Jefferson Medical College Hospital★		Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Proct., Psych., Pul. Dis., Rad., Surg., Urol.
Lankenau Hospital★	[illegible]	Int. Med., Obst., Path., Surg., Urol.
Mercy-Douglass Hospital★		Ob.-Gyn., Rad.
Methodist Episcopal Hospital★		Int. Med., Ob.-Gyn., Surg.
Nazareth Hospital★		Rad.
Pennsylvania Hospital★		Card. Dis., Derm. Syph., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg., Urol.
Pennsylvania Hospital-Department for Mental and Nervous Diseases	Philadelphia, Pa	Psych.
Philadelphia General Hospital★	Philadelphia, Pa	Card. Dis., Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Philadelphia Hospital for Contagious Diseases	[illegible]	Con. Dis.
Philadelphia Psychiatric Hospital	[illegible]	Psych.
Philadelphia State Hospital	[illegible]	Psych.
Presbyterian Hospital★	[illegible]	Anes., Int. Med., Path., Rad., Surg., Urol.
St. Christopher's Hospital for Children	[illegible]	Ped.
St. Joseph	[illegible]	Surg.
St. Luke'	[illegible]	Ped.
St. Mary	[illegible]	Surg.
Shriners	[illegible]	Ortho. Surg.
Skin and Cancer Hospital	[illegible]	Derm. Syph.
Temple University Hospital★	[illegible]	Allergy, Anes., Card. Dis., Gastro., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Proct., Psych., Rad., Surg., Urol.
U. S. Naval Hospital★	Philadelphia, Pa	Anes., Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Wills Hospital	[illegible]	Ophth.
Woman's Hospital★	[illegible]	Int. Med., Ob.-Gyn., Surg.
Valley Forge Army Hospital★	[illegible]	Int. Med., Surg.
Allegheny General Hospital★	[illegible]	Anes., Int. Med., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Children's Hospital	[illegible]	Ortho. Surg., Path., Ped., Surg.
Elizabeth Steel	[illegible]	Int. Med., Ob.-Gyn.
Eye, Ear, Nose	[illegible]	Ophth., Otol.
Mercy Hospital★	[illegible]	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Path., Rad., Surg., Urol.
Montefiore Hospital★	[illegible]	Allergy, Anes., Int. Med., Obst., Ophth., Path., Rad., Surg.
Pittsburgh Hospital★	[illegible]	Ob.-Gyn., Surg.
Pittsburgh Medical Center		Derm. Syph., Rad., Urol.
Presbyterian Hospital★		Card. Dis., Int. Med., Ortho. Surg., Path., Plas. Surg., Proct., Surg., Urol.
St. Francis Hospital★	Pittsburgh, Pa	Anes., Card. Dis., Int. Med., Neur., Ob.-Gyn., Ortho. Surg., Path., Psych., Rad., Surg.
St. John's General Hospital	Pittsburgh, Pa	Gen'l Pract.
St. Margaret Memorial Hospital★	Pittsburgh, Pa	Ob.-Gyn., Int. Med., Path.
South Side Hospital★	Pittsburgh, Pa	Int. Med., Ob.-Gyn.
Tuberculosis League Hospital	Pittsburgh, Pa	Pul. Dis.
Western Pennsylvania Hospital	Pittsburgh, Pa	Int. Med., Neuro. Surg., Path., Ped., Rad., Surg.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
Western State Psychiatric Institute and Clinic		Psych.
Community General Hospital★		Gen'l Pract., Path.
Reading Hospital★		Int. Med., Ortho. Surg., Path., Rad., Surg.
St. Joseph's Hospital★		Int. Med., Path., Rad., Surg.
Robert Packer Hospital★		Anes., Int. Med., Neuro. Surg., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Urol
Scranton State Hospital★	Scranton, Pa.	Int. Med., Path.
Sharon General Hospital	Sharon, Pa.	Gen'l Pract., Rad.
Mont Alto State Sanatorium (Pennsylvania State Sanatorium No. 1)	South Mountain, Pa.	Pul. Dis.
Warren State Hospital	Warren, Pa.	Psych.
Chester County Hospital★	West Chester, Pa.	Rad.
Mercy Hospital★	Wilkes-Barre, Pa.	Surg., Urol.
Wilkes-Barre General Hospital★		Int. Med., Obst., Surg., Urol.
Columbia Hospital★		Surg.
Williamsport Hospital★	Williamsport, Pa.	Path., Surg.
Woodville State Hospital	Woodville, Pa.	Psych.
York Hospital★	York, Pa.	Int. Med. Path., Surg.
State Hospital for Mental Diseases	Howard, R. I.	Psych.
Memorial Hospital★	Pawtucket, R. I.	Gen'l Pract.
Butler Hospital	Providence, R. I.	Psych.
Charles V. Chapin Hospital	Providence, R. I.	Ped., Psych.
Providence Lying-In Hospital	Providence, R. I.	Obst.
Rhode Island Hospital★	Providence, R. I.	Anes., Card. Dis., Int. Med., Gyn., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Urol.
Roger Williams General Hospital★	Providence, R. I.	Rad.
Veterans Admin. Hospital	Providence, R. I.	Int. Med.
Emma Pendleton Bradley Home	Riverside, R. I.	Psych.
Roper Hospital★	Charleston, S. C.	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Columbia Hospital★	Columbia, S. C.	Int. Med., Ob.-Gyn., Ortho. Surg., Ped., Rad.
Veterans Admin	Columbia, S. C.	Int. Med., Ortho. Surg., Rad., Surg., Urol.
Greenville Gener	Greenville, S. C.	Gen'l Pract., Ob.-Gyn., Ortho. Surg., Path.
Shriners Hospita	Greenville, S. C.	Ortho. Surg.
Orangeburg Reg	Orangeburg, S. C.	Urol.
Spartanburg General Hospital★	Spartanburg, S. C.	Gen'l Pract., Rad.
Sacred Heart Hospital★	Yankton, S. D.	Gen'l Pract.
Baroness Erlanger Hospital★		Anes., Int. Med., Obst., Ortho. Surg., Path., Surg.
Memorial Hospital		Int. Med., Ob.-Gyn.
Newell Hospital		Surg.
T. C. Thompson		Ped.
Knoxville General		Int. Med., Ob.-Gyn., Ped., Surg.
St. Mary's Memc	Knoxville, Tenn.	Gen'l Pract., Int. Med., Ortho. Surg., Path.
Madison Rural Hospital and Sanitarium	Madison College, Tenn	Gen'l Pract.
Baptist Memorial Hospital★	Memphis, Tenn.	Int. Med., Neuro. Surg., Ob.-Gyn., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Campbell Clinic Hospital	Memphis, Tenn.	Ortho. Surg.
Gailor Memorial Psychiatric Hospital	Memphis, Tenn.	Psych.
City of Memphis Hospital★		Anes., Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Rad., Surg., Urol
Memphis Eye, Ear, Nose and Throat Hospital		Ophth.
Methodist Hospital★		Obst., Path., Ped., Rad., Surg.
St. Joseph's Hospital★	Memphis, Tenn.	Int. Med., Ob.-Gyn., Path., Ped., Surg., Urol.
Veterans Admin. Hospital	Memphis, Tenn.	Int. Med., Neuro. Surg., Ophth., Otol., Ortho. Surg., Path., Phys. Med., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
George W. Hubbard Hospital of Meharry Medical College★	Nashville, Tenn.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Mid State Baptist Hospital★	Nashville, Tenn.	Obst., Surg.
St. Thomas Hospital★	Nashville, Tenn.	Int. Med., Obst., Ped., Surg.
Vanderbilt University Hospitals		
Nashville General Hospital★	Nashville, Tenn.	Int. Med., Ob.-Gyn., Path., Surg., Urol.
Vanderbilt University Hospital★	Nashville, Tenn	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Path., Ped., Psych., Rad., Surg.
Veterans Admin. Hospital★	Nashville, Tenn.	Int. Med., Path., Psych., Rad., Surg.
Oak Ridge In	Oak Ridge, Tenn.	Int. Med.
Oakville Memc	Oakville, Tenn.	Pul. Dis.
Brackenridge	Austin, Texas	Gen'l Pract., Ob.-Gyn., Path., Surg.
Baylor University Hospital★	Dallas, Texas	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Plas. Surg., Proct., Rad., Surg., Thor. Surg.
Beverly Hills Clinic and Sanitarium	Dallas, Texas	Psych.
Children's Medical Center	Dallas, Texas	Ped.
Gaston Hospital	Dallas, Texas	Surg.
Methodist Hospital★	Dallas, Texas	Int. Med., Ob.-Gyn., Rad., Surg.
Parkland Hospital★	Dallas, Texas	Anes., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
[illegible]	Dallas, Texas	Int. Med., Ob.-Gyn., Path., Ped., Rad.
spital for Crippled Children	Dallas, Texas	Ortho. Surg.
	Dallas, Texas	Psych.
Veterans Admin. Hospital★	Dallas, Texas	Int. Med., Ophth., Otol., Ortho. Surg., Path., Rad., Surg., Urol.
Woodlawn Hospital	Dallas, Texas	Pul. Dis.
Hotel Dieu, Sisters Hospital	El Paso, Texas	Obst.
William Beaumont Army Hospital★	El Paso, Texas	Int. Med., Surg.
All Saints Hospital	Fort Worth, Texas	Gen'l Pract.
City-County Hospital★	Fort Worth, Texas	Gen'l Pract.
Harris Hospital★	Fort Worth, Texas	Anes., Int. Med., Ob.-Gyn., Path., Surg.
St. Joseph	Fort Worth, Texas	Gen'l Pract.
St. Mary's	Galveston, Texas	Gen'l Pract.
University c	Galveston, Texas	Anes., Card. Dis., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Hermann Hospital★	Houston, Texas	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Jefferson Davis Hospital★	Houston, Texas	Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Surg., Urol.
M. D. Anderson Hospital for Cancer Research	Houston, Texas	Gyn., Int. Med., Mal. Dis., Path., Rad., Surg.
Methodist Hospital★	Houston, Texas	Int. Med., Neuro. Surg., Ob.-Gyn., Rad., Surg.
St. Joseph	Houston, Texas	Obst., Ortho. Surg., Path., Rad., Surg., Urol.
Southern	Houston, Texas	Int. Med., Surg.
Veterans	Houston, Texas	Anes., Int. Med., Neur., Ophth., Otol., Ortho. Surg., Path., Phys. Med., Psych., Pul. Dis., Surg., Urol.
Veterans Admin. Hospital★	McKinney, Texas	Anes., Int. Med., Ophth., Ortho. Surg., Path., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Shannon West Texas Memorial Hospital	San Angelo, Texas	Gen'l Pract.
Baptist Memorial Hospital★	San Antonio, Texas	Gen'l Pract., Ob.-Gyn., Path., Rad.
Brooke Army Hospital★	San Antonio, Texas	Anes., Card. Dis., Derm. Syph., Gastro., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med. Rehab., Rad., Surg., Urol.
Robert B. Green Memorial Hospital★	San Antonio, Texas	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Surg.
Santa Rosa Hospital★	San Antonio, Texas	Int. Med., Path., Ped., Rad.
U. S. Air Force Hospital	San Antonio, Texas	Anes., Int. Med., Ortho. Surg., Surg.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
Kings Daughters Hospital ★	Temple, Texas	Gen'l Pract.
Scott and White Memorial Hospital ★	Temple, Texas	Int. Med., Ortho. Surg., Rad., Surg.
Veterans Admin. Hospital	Waco, Texas	Psych.
U. S. Air Force Hospital	Wichita Falls, Texas	Surg.
Wichita Falls Clinic-Hospital ★	Wichita Falls, Texas	Int. Med., Rad., Surg., Urol.
Wichita General Hospital	Wichita Falls, Texas	Gen'l Pract.
St. Benedict's Hospital ★	Ogden, Utah	Path.
Thomas D. Dee Memorial Hospital ★		Int. Med., Ob.-Gyn., Surg.
Dr. W. H. Groves Latter-Day Saints Hospital ★		Int. Med., Ob.-Gyn., Path., Surg.
Holy Cross Hospital ★		*Int. Med., Ob.-Gyn., Path., Surg.*
Primary Children's Hospital		Ortho. Surg.
St. Mark's Hospital ★		Surg.
Salt Lake County		Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Psych., Surg.
Shriners Hospital		Ortho. Surg.
Veterans Admin. Hospital ★		Int. Med., Ortho. Surg., Path., Surg.
Brattleboro Retreat		Psych.
Bishop DeGoesbriand Hospital ★		Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Mary Fletcher Hospital ★		Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Vermont State Hospital		Psych.
Veterans Admin. Hospital	White River Junction, Vt.	Anes., Int. Med., Neuro. Surg., Plas. Surg., Rad., Surg., Urol.
Alexandria Hospital ★	Alexandria, Va.	Int. Med., Obst., Surg.
Arlington Hospital	Arlington, Va.	Obst.
Blue Ridge Sanatorium	Charlottesville, Va.	Pul. Dis.
University of Virginia Hospital ★	Charlottesville, Va.	Allergy, Anes., Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Chesapeake & Ohio Railway Employees Hospital ★	Clifton Forge, Va.	Int. Med., Surg.
Memorial Hospital ★	Danville, Va.	Path.
U. S. Army Hospital	Fort Belvoir, Va.	Surg.
Lynchburg G	Lynchburg, Va.	Path.
Mary Immac	Newport News, Va.	Surg.
Riverside Hospital ★	Newport News, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Surg.
De Paul Hospital ★	Norfolk, Va.	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Norfolk Gene	Norfolk, Va.	Int. Med., Ob.-Gyn., Path., Rad., Surg.
U. S. Naval	Portsmouth, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Psych., Surg.
Crippled Children's Hospital	Richmond, Va.	Ortho. Surg.
Johnston-Willis Hospital ★	Richmond, Va.	Int. Med., Obst., Surg.
Medical College of Virginia—Hospital Division ★	Richmond, Va.	Allergy, Anes., Derm. Syph., Int. Med., Neuro. Surg., Obst., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Retreat for the Sick	Richmond, Va.	Gen'l Pract.
St. Elizabeth Hospital	Richmond, Va.	Surg.
Sheltering Arms Hospital	Richmond, Va.	Gen'l Pract.
Veterans Admin. Hospital ★	Richmond, Va.	Anes., Card. Dis., Gastro., Int. Med., Neur., Neuro. Surg., Ophth., *Ortho.* Surg., Path., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Gill Memorial Eye, Ear and Throat Hospital	Roanoke, Va.	Ophth., Otol.
Jefferson Hospital ★	Roanoke, Va.	Int. Med., Surg.
Lewis-Gale Hospital ★	Roanoke, Va.	Int. Med., Surg.
Veterans Admin. Hospital	Roanoke, Va.	Psych.
Eastern State Hospital	[illegible]	Psych.
Madigan Army Hospital ★	[illegible]	Int. Med., Surg.
Western State Hospital	[illegible]	Psych.
Eastern State Hospital	Medical Lake, Wash.	Psych.
Children's	Seattle, Wash.	Ortho. Surg., Ped., Surg.
Doctors	Seattle, Wash.	Int. Med., Ob.-Gyn., Path., Surg.
Firland Sanatorium	Seattle, Wash.	Pul. Dis., Thor. Surg.
King County Hospital Unit No. 1, (Harborview) ★	Seattle, Wash.	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Surg.
Maynard Hospital	Seattle, Wash.	Gen'l Pract.
Pinel Foundation	Seattle, Wash.	Psych.
Providence Hospital ★	Seattle, Wash.	Gen'l Pract., Int. Med., Ortho. Surg., Path., Surg.
Swedish Hospital ★	Seattle, Wash.	Int. Med., Ob.-Gyn., Path., Rad., Surg.
U. S. Public Health Service Hospital ★	Seattle, Wash.	Int. Med., Ophth., Path., Surg.
Veterans Admin. Hospital ★	Seattle, Wash.	Int. Med., Path., Psych., Surg.
Virginia Mason Hospital ★	Seattle, Wash.	Anes., Int. Med., Obst., Rad., Surg.
Deaconess Hospital ★	Spokane, Wash.	Int. Med., Path.
Sacred H	Spokane, Wash.	Gen'l Pract., Path., Rad.
St. Luke	Spokane, Wash.	Int. Med., Ob.-Gyn., Path., Surg.
Shriners	*Spokane, Wash.*	*Ortho.* Surg.
St. Joseph Hospital ★	Tacoma, Wash.	Path.
Tacoma General	Tacoma, Wash.	Anes., Path.
Northern Perman	Vancouver, Wash.	Int. Med.
Beckley Hospital	Beckley, W. Va.	Surg.
Bluefield Sanitarium ★	Bluefield, W. Va.	Gen'l Pract.
Charleston Gener	Charleston, W. Va.	Int. Med., Ortho. Surg., Path., Surg.
Kanawha Valley	Charleston, W. Va.	Gen'l Pract., Surg.
Memorial Hospital ★	Charleston, W. Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Ped., Surg.
Chesapeake & Ohio Hospital	Huntington, W. Va.	Int. Med., Surg.
St. Mary's Hospital ★	Huntington, W. Va.	Int. Med., Obst., Ortho. Surg., Surg., Urol.
Veterans Admin. Hospital	Martinsburg, W. Va.	Int. Med., Surg., Thor. Surg.
Morris Memorial Hospital for Children	Milton, W. Va.	Ortho. Surg.
Laird Memorial Hospital	Montgomery, W. Va.	Surg.
St. Joseph's Hospital ★	Parkersburg, W. Va.	Path., Surg.
Myers Clinic Hospital	Philippi, W. Va.	Surg.
Ohio Valley General Hospital ★	Wheeling, W. Va.	Anes., Gen'l Pract., Int. Med., Path., Surg.
Mercy Hospital ★	Janesville, Wis.	Surg.
La Crosse Lutheran Hospital ★	La Crosse, Wis.	Int. Med., Surg., Urol.
Madison General Hospital ★	Madison, Wis.	Int. Med., Path., Surg., Urol.
Methodist Hospital ★	Madison, Wis.	Rad., Surg.
St. Mary's Hospital ★	Madison, Wis.	Int. Med.
University Hospitals	Madison, Wis.	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Plas. Surg., *Psych.*, Rad., Surg., Urol.
Veterans Admin. Hospital	Madison, Wis.	Pul. Dis.
St. Joseph's Hospital ★	Marshfield, Wis.	Int. Med., Path., Rad.
Columbia Hospital ★	Milwaukee, Wis.	Int. Med., Obst., Ortho. Surg., Path., Rad., Surg.
Evangelical Deaconess Hospital ★	Milwaukee, Wis.	Gen'l Pract., Rad., Surg.
Milwaukee Children's Hospital ★	Milwaukee, Wis.	Ortho. Surg., Ped., Surg.
Milwaukee County Hospital ★	Milwaukee, Wis.	Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Proct., Rad., Surg., Urol.
Milwaukee County Hospital for Mental Diseases		Psych.
Milwaukee Hospital ★		Int. Med., Ob.-Gyn., Path., Rad., Surg.
Mo		Int. Med., Ob.-Gyn.
Mu		Pul. Dis., Thor. Surg.
St.		Int. Med., Ob.-Gyn., Path., Rad., Surg.
St.		Ob.-Gyn., Surg.
St. Mary's Hospital ★		Ob.-Gyn., Path.
St. Michael's Hospital ★		Gen'l Pract.
Veterans Admin. Hospital		Anes., Derm. Syph., Int. Med., Ophth., Otol., Ortho. Surg., Path., Phys. Med., Pul. Dis., Rad., Surg., Urol.
Wisconsin State Sanatorium	Statesan, Wis.	Pul. Dis.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
Milwaukee Sanatorium	Wauwatosa, Wis.	Psych.
Kapiolani Maternity and Gynecological Hospital	Honolulu, T. H.	Ob.-Gyn.
Kauikeolani Children's Hospital	Honolulu, T. H.	Ped.
Leahi Hospital	Honolulu, T. H.	Pul. Dis., Thor. Surg.
Queen's Hospital ★	Honolulu, T. H.	Int. Med., Ob.-Gyn., Path., Psych., Rad., Surg.
St. Francis Hospital ★	Honolulu, T. H.	Ob.-Gyn.
Shriners Hospital for Crippled Children	Honolulu, T. H.	Ortho. Surg.
Tripler Army Hospital ★	Honolulu, T. H.	Int. Med., Ob.-Gyn., Rad., Surg., Urol.
Territorial Hospital	Kaneohe, Oahu, T. H.	Psych.
Bayamon District Hospital ★	Bayamon, P. R.	Ped., Surg.
San Juan City Hospital ★	San Juan, P. R.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Veterans Admin. Hospital	San Juan, P. R.	Int. Med., Surg.
Gorgas Hospital ★	Ancon, C. Z.	Int. Med., Ob.-Gyn., Ophth., Path., Rad., Surg.

★ Indicates hospitals approved for training interns.

GRADUATE TRAINING PROGRAMS

Acceptable by the American Board of Psychiatry and Neurology Until July 1, 1956

The Council on Medical Education and Hospitals has limited its approval of programs for graduate training to those offered in connection with general or special hospitals. The following information is published, however, at the request of the American Board of Psychiatry and Neurology to indicate the availability of a special type of training which is acceptable to the board and carries full credit toward certification by that board. The board has announced, however, that after July 1, 1956, credit for training in child psychiatry will be granted when such training is integrated with and contributory to an approved residency program. Independent approval of child guidance centers by the American Board of Psychiatry and Neurology will be terminated as of that date.

REQUIREMENTS FOR ACCEPTANCE

In order to facilitate the arrangements for training in child psychiatry (which constitutes a major aspect of modern psychiatry), the American Board of Psychiatry and Neurology will accept one year of training in psychiatric clinics for children which may or may not be a part of a hospital approved for residency training, provided such a clinic gives adequate supervision and instruction for full time training during the entire third year of the required three year formal training period. For the purpose of evaluating such clinics, the following conditions and criteria are deemed essential by the American Board of Psychiatry and Neurology:

1. That the clinic have a full time medical director, psychologist, and social worker qualified by training and experience in child psychiatry and allied fields to supervise the training of residents.

2. That the major portion of such training be devoted to therapy adequately supervised by this qualified staff.

3. That the service and teaching activities of the clinic be integrated with those of the community and its social agencies.

4. That clinic work be supplemented by seminars, case conferences, journal clubs or other opportunities for the discussion of the basic principles involved in outpatient work with children and parents, teacher, public health and welfare agency personnel.

5. That such a training clinic be well established in the community with a qualified staff that has operated together long enough as a team to insure stable and sound functioning.

6. That the senior members of the clinic team show evidence of previous experience in the teaching of psychiatry in general, child psychiatry in particular, and their allied fields.

These criteria set forth by the Board pertain more particularly to community sponsored clinics offering full time training in child psychiatry during the third year of formal residency training. If these clinics are affiliated with hospitals already maintaining approved programs, separate approval is not required unless warranted on the basis of their meeting all requirements for straight fellowship training in child psychiatry.

The following clinics are acceptable to the American Board of Psychiatry and Neurology as qualifying under these provisions until July 1, 1956.

Center	Director
Pasadena Child Guidance Clinic 40 E. Dayton Central Park Pasadena 2, Calif.	Dr. M. B. Durfee
Children's Psychiatric Division Langley Porter Clinic San Francisco	Dr. Stanislaus Szurek
Clifford W. Beers Guidance Clinic 432 Temple Street New Haven 11, Conn.	Dr. William B. Curtis
Institute for Juvenile Research 907 S. Wolcott Ave. Chicago	Dr. Julius B. Richmond
Louisville Mental Hygiene Clinic and Child Study School 610 S. Floyd Street Louisville, Ky.	Dr. Spafford Ackerly
The Guidance Center 1737 Prytania Street New Orleans	Dr. Jack E. Chappuis, Acting Director
The Psychiatric Clinic of the Mental Hygiene Society of Maryland Baltimore	Dr. H. Whitman Newell
Douglas A. Thom Clinic for Children, Inc. 315 Dartmouth Street Boston	Dr. Eveoleen N. Rexford
Judge Baker Guidance Center 38 Beacon Street Boston	Dr. George E. Gardner
Children's Center 244 Townsend Street Roxbury, Mass.	Dr. Marian Putnam and Mrs. Beata Rank, Co-directors
Worcester Child Guidance Clinic 2 State Street Worcester 5, Mass.	Dr. Joseph Weinreb
Amherst H. Wilder Clinic 279 Rice Street St. Paul	Dr. Hyman S. Lippman
Jewish Board of Guardians 228 East 19th Street New York 3	Dr. Joachim Flescher
Central Clinic Cincinnati General Hospital Cincinnati	Dr. Maurice Levine
Cleveland Guidance Center 2525 Euclid Avenue Cleveland	Dr. Claire M. Ness
Child Guidance Clinic 1711 Fitzwater Street Philadelphia 46	Dr. Frederick H. Allen
Pittsburgh Child Guidance Clinic 3004 Victoria Street Pittsburgh 13	Dr. Harry M. Little
Children's Service Center of Wyoming Valley 335 South Franklin Street Wilkes-Barre, Pa.	Dr. J. Franklin Robinson
The Children's Service Center of Charlottesville and Albemarle County, Inc. 116 14th Street, N.W. Charlottesville, Va.	Dr. Frank J. Curran

APPROVED EXAMINING BOARDS IN MEDICAL SPECIALTIES ✓

ADVISORY BOARD FOR MEDICAL SPECIALTIES

B. R. KIRKLIN, Secretary-Treasurer
Rochester, Minn.

The Advisory Board for Medical Specialties was organized in 1933-1934 to coordinate graduate medical education and certification of medical specialists in the United States and Canada. A few specialty boards had been functioning actively and successfully for a number of years prior to the organization of the Advisory Board for Medical Specialties. Their purposes were, primarily, to establish minimum standards of graduate education and training requirements for physicians representing themselves to the public as being specialists, with certification by the boards of candidates after they had been able successfully to pass the boards' examinations. Secondarily, these boards hoped to improve the general standards of graduate medical education and facilities for special training.

It was soon recognized that some formal and official plan of organization must be established. It was clearly essential that an examining board must have the official sanction of the national societies in its given specialty as well as that of its section of the American Medical Association, but there was, at that time, nothing to prevent unofficial groups from organizing examining boards and using the title American board. In order to avoid duplication of effort as well as to coordinate the work of the several boards and other interested groups into a concise and homogeneous plan for betterment, it was deemed advisable to create an advisory board that should give consideration to those problems common to all and that should be representative of all organizations concerned.

The Advisory Board is composed of two representatives from each of the approved examining boards in the medical specialties and such other national organizations as are interested in the education, examination, and certification of medical specialists. These representatives are duly elected to this body.

The number of organizations comprising the Advisory Board for Medical Specialties remains the same; namely, 18 Specialty Boards and 4 other organizations interested in graduate medical education. The total voting membership is still 44. The organizations and their representatives are as follows:

Association of American Medical Colleges
WILLIAM S. MIDDLETON — STANLEY E. DORST *

The American Hospital Association
FRANK R. BRADLEY — ROBIN C. BUERKI *

The Federation of State Medical Boards of the U. S. A.
CREIGHTON BARKER — WALTER L. BIERRING *

The National Board of Medical Examiners
J. STEWART RODMAN — ROBERT W. KEETON *

The American Board of Ophthalmology
DERRICK VAIL — EDWIN P. DUNPHY *

The American Board of Otolaryngology
LEROY A. SCHALL — DEAN M. LIERLE *

The American Board of Obstetrics and Gynecology
HERBERT E. SCHMITZ — ROBERT L. FAULKNER *

The American Board of Dermatology and Syphilology
DONALD M. PILLSBURY — GEORGE M. LEWIS *

The American Board of Pediatrics
LEE FORREST HILL — JOHN McK. MITCHELL *

The American Board of Psychiatry and Neurology
FRANCIS GERTY — ROLAND P. MACKAY

The American Board of Radiology
DOUGLAS QUICK — B. R. KIRKLIN *

The American Board of Orthopedic Surgery
CLARENCE H. HEYMAN — HAROLD A. SOFIELD *

The American Board of Urology
GILBERT J. THOMAS — HARRY CULVER *

The American Board of Internal Medicine
WALTER L. PALMER — HENRY M. THOMAS JR.*

The American Board of Pathology
ROBERT A. MOORE — WILLIAM B. WARTMAN *

The American Board of Surgery
WARREN H. COLE — JOHN B. FLICK *

The American Board of Anesthesiology
R. J. WHITACRE — CURTISS B. HICKCOX *

The American Board of Plastic Surgery
BRADFORD CANNON — WILLIAM A. HAMM *

The American Board of Neurological Surgery
FRANCIS GRANT — LEONARD T. FURLOW *

The American Board of Physical Medicine and Rehabilitation
ROBERT L. BENNETT — EARL C. ELKINS*

The American Board of Preventive Medicine
WILLIAM P. SHEPARD — ERNEST L. STEBBINS *

The American Board of Proctology
WALTER A. FAUSLER — LOUIS A. BUIE *

Officers and Committees—1953

ROBERT A. MOORE, American Board of Pathology, President.
WARREN H. COLE, American Board of Surgery, Vice President.
B. R. KIRKLIN, American Board of Radiology, Secretary-Treasurer

MEMBERS OF THE EXECUTIVE COMMITTEE
- Term to expire in 1954: WALTER L. PALMER, American Board of Internal Medicine
- Term to expire in 1955: ROBIN C. BUERKI, American Hospital Association

COMMITTEE ON STANDARDS AND EXAMINATIONS
- ROBERT L. FAULKNER, American Board of Obstetrics and Gynecology, Chairman
- HAROLD A. SOFIELD, American Board of Orthopedic Surgery
- LOUIS A. BUIE, American Board of Proctology

COMMITTEE ON AUDIT AND FINANCE
- FRANCIS GERTY, American Board of Psychiatry and Neurology, Chairman
- WALTER L. PALMER, American Board of Internal Medicine

REPRESENTATIVES ON ADVISORY COUNCIL ON MEDICAL EDUCATION
- WARREN H. COLE, American Board of Surgery
- ERNEST L. STEBBINS, American Board of Preventive Medicine

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* Corresponding member.

Examining and certifying boards in 19 specialties have been approved by the Council on Medical Education and Hospitals of the American Medical Association and the Advisory Board for Medical Specialties on the basis of minimal standards governing accreditation of specialty boards as formulated by the Council.

The primary purposes of the boards are (1) to conduct investigations and examinations to determine the competence of voluntary candidates for certificates issued by the respective boards, (2) to grant and issue certificates of qualification to candidates successful in demonstrating their proficiency, (3) to stimulate the development of adequate training facilities, (4) to aid in evaluating residencies and fellowships under consideration by the Council on Medical Education and Hospitals of the American Medical Association, and (5) to advise physicians desiring certification as to the course of study and training to be pursued.

The boards are in no sense educational institutions, and the certificate of a board is not to be considered a degree. It does not confer on any person legal qualifications, privileges, or a license to practice medicine or a specialty. The boards do not purport in any way to interfere with or limit the professional activities of any licensed physician, nor do they desire to interfere with any practitioners of medicine in any of their regular or legitimate duties.

Two boards certify candidates in subspecialties. The American Board of Internal Medicine certifies in allergy, cardiovascular disease, gastroenterology, and pulmonary diseases. The American Board of Pediatrics certifies in allergy. Certification in the primary field is a requirement for certification in the subspecialties. The Board of Thoracic Surgery, which is organized as an affiliate board of the American Board of Surgery, requires certification in surgery as a prerequisite to certification in thoracic surgery.

Certificates in special divisions of their specialty are conferred by five boards. The American Board of Obstetrics and Gynecology will issue certificates in obstetrics or gynecology only. The American Board of Otolaryngology grants a limited certificate in endoscopy. The American Board of Pathology issues certificates in pathologic anatomy, clinical pathology, a combination of these two fields, pathologic anatomy and clinical microbiology, clinical microbiology and clinical chemistry, clinical bacteriology, neuropathology, and clinical microbiology. The American Board of Psychiatry and Neurology issues separate certificates in psychiatry and in neurology, or a combined certificate for those qualified in both fields. This board also issues supplementary certificates in psychiatry and in neurology. The American Board of Radiology issues certificates in radiology, roentgenology, therapeutic radiology, therapeutic roentgenology, diagnostic roentgenology, radium therapy, radiological physics, x-ray and radium physics, and medical nuclear physics.

Each of the boards has published a booklet containing a list of its officers and a brief statement of its organization, purposes, and the qualifications that determine eligibility for certification. A summary of the current data pertaining to each board and the names of its officers are reproduced in the following pages.

There is included in this section a specific statement from each of the boards regarding allowances of credit for service in the armed forces during the present emergency. A résumé of medical education and national defense was published in the Education Number of THE JOURNAL.[1]

Table 1 contains a list of the approved specialty boards, the year of their activation, the number of certificates issued prior to July 1, 1952, and the total number of candidates certified to June 30, 1953. Figures are also given in these two categories showing the numbers certified in the subspecialties and finally the available figures pertaining to special certification by the boards in obstetrics and gynecology, otolaryngology, pathology, psychiatry and neurology, and radiology.

On July 1, 1952, there were 48,464 physicians certified by the 19 boards. During the year July 1, 1952, to June 30, 1953, a total of 4,022 certificates were issued. Up to this latter date 52,486 physicians have been certified.

On July 1, 1952, a total of 1,255 certificates in subspecialties had been awarded. An additional 53 were awarded in the ensuing year, bringing the total number of certificates issued in the subspecialties to 1,308 on June 30, 1953. Prior to July 1, 1952, the five boards mentioned had issued 9,005 special certificates. During the year ending June 30, 1953, 843 special certificates were issued, bringing the total number awarded to that date to 9,848.

The number of specialists certified each year during the past 14 years by all boards and the cumulative totals are recorded in table 2. Up to June 30, 1953, a total of 52,486 certificates were issued. This does not represent the number of living specialists, but the total number of certificates issued.

The sixth edition of the "Directory of Medical Specialists," compiled by the Advisory Board for Medical Specialties, published in 1953 by the A. N. Marquis Company, Chicago, contains biographic information on the educational background of each living specialist, including those retired from practice, certified by an American board.

CREDIT FOR MILITARY SERVICE

At the suggestion of the Joint Committee on Medical Education in Time of National Emergency, the Advisory Board for Medical Specialties conducted a survey to determine the amount of credit for service in the armed forces during the present emergency that would be given toward specialty board certification. The inquiry addressed to the boards contained the following questions:

> Will your specialty board give preference to those candidates wishing to be examined before going overseas or entering military service?
>
> How much, if any, credit toward your training and/or experience requirements will your board allow candidates while in military service?

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[1] Medical Education in the United States and Canada, J. A. M. A. 153:105 (Sept. 12) 1953.

TABLE 1.—*Approved Examining Boards in Medical Specialties*

Key No.	Name of Board	Year of Activation	Total Certificates Awarded to July 1, 1952	Total Certificates Awarded to June 30, 1953
1.	American Board of Pediatrics	1933	4,076	4,529
2.	American Board of Psychiatry and Neurology	1934	4,339	4,646
3.	American Board of Orthopedic Surgery	1934	2,013	2,207
4.	American Board of Dermatology and Syphilology	1932	1,455	1,512
5.	American Board of Radiology	1934	4,029	4,311
6.	American Board of Urology	1935	1,686	1,809
7.	American Board of Obstetrics and Gynecology	1930	3,624	3,908
8.	American Board of Internal Medicine	1936	7,725	8,401
9.	American Board of Pathology	1936	2,279	2,494
10.	American Board of Ophthalmology	1917	3,596	3,880
11.	American Board of Otolaryngology	1924	4,814	4,961
12.	American Board of Surgery	1937	5,569	6,158
13.	American Board of Anesthesiology	1937	902	1,023
14.	American Board of Plastic Surgery	1937	253	275
15.	American Board of Neurological Surgery	1940	431	488
16.	American Board of Physical Medicine and Rehabilitation	1947	211	239
17.	American Board of Preventive Medicine	1948	1,011	1,068
18.	American Board of Proctology	1949	121	144
19.	Board of Thoracic Surgery (An Affiliate of the American Board of Surgery)	1948	330 *	397 *
	Totals	....	48,464	52,486
	Certification in Subspecialties			
	American Board of Internal Medicine			
	Allergy		135	144
	Cardiovascular Disease		492	509
	Gastroenterology		286	298
	Pulmonary Diseases		213	218
	Totals		1,126	1,169
	American Board of Pediatrics			
	Allergy		48	58
	American Board of Surgery			
	Proctology		81 †	81 †
	Totals		1,255	1,308
	Special Certification			
	American Board of Obstetrics and Gynecology			
	Obstetrics		3	9
	Gynecology		4	6
	American Board of Otolaryngology			
	Endoscopy		3	4
	American Board of Pathology			
	Pathologic Anatomy		364	516
	Clinical Pathology		170	211
	Pathologic Anatomy and Clinical Pathology		84	103
	Pathologic Anatomy and Clinical Microbiology		1	1
	Clinical Microbiology and Clinical Chemistry		3	3
	Clinical Bacteriology		2	2
	Neuropathology		3	5
	Clinical Microbiology		..	1
	Totals		637	861
	American Board of Psychiatry and Neurology			
	Psychiatry		3,120	3,402
	Neurology		282	298
	Psychiatry and Neurology		937	946
	Totals		4,339	4,646
	American Board of Radiology			
	Radiology		2,490	2,758
	Roentgenology		870	892
	Diagnostic Roentgenology		466	477
	Therapeutic Radiology		149	151
	Therapeutic Roentgenology		5	5
	Radium Therapy		5	5
	Radiological Physics		26	34
	X-Ray and Radium Physics		14	15
	Medical Nucleae Physics		4	4
	Totals		4,029	4,341
	Totals		9,005	9,848

* Included in totals for American Board of Surgery.
† Independent board established in 1949.

In reply to the first question all boards answered in the affirmative. The specialty boards have not lowered their requirements because of the military emergency, but all boards have indicated they will grant some credit for military service. The specialty boards have indicated such allowances as follows:

Anesthesiology.—No formal training credit is granted for military service unless the physician is assigned to a service hospital with an approved residency training program. Practice time will, however, be granted for military service if the physician is assigned to the anesthesia service.

Dermatology and Syphilology.—Full-time dermatological military service may be credited in part, at the discretion of the board, toward the required three years of training, provided a significant portion of formal training was completed before entering military service. However, at least one year of the required three years' training, including instruction in the fundamental subjects deemed essential for an adequate dermatological education, must be spent in an institution approved for a three-year training program by the board and the Council on Medical Education and Hospitals of the American Medical Association. Dermatological work not credited as training may satisfy part or all of the required two years' additional experience, the amount of credit depending on the circumstances.

TABLE 2.—*Annual Specialty Board Certification, 1940-1953*

Year (Ended March)	Number of Board in Existence	Number Certified	Cumulated Totals
1940	14	.....	15,853
1941	15	2,085	17,938
1942	15	1,756	19,694
1943	15	2,172	21,866
1944	15	1,578	23,444
1945	15	1,308	24,752
1946	15	1,320	26,072
1947	15	2,424	28,496
1948	16	3,002	31,498
1949 (June 30)	19*	4,479	35,977
1950 (June 30)	19	3,827	39,804
1951 (June 30)	19	4,552	44,346
1952 (June 30)	19	4,118	48,464
1953 (June 30)	19	4,022	52,486

* One board, the American Board of Proctology, did not certify any candidates during this period.

Internal Medicine.—Active duty subsequent to June 1, 1950, may be applied for not more than one year of residency or practice credit, regardless of assignment. Service beyond one year may only be applied as practice credit on the certification of former chiefs of service, unless the candidate served officially as a resident in a service approved for residency in internal medicine while there.

Neurological Surgery.—Credit will be allowed toward training requirement if candidate is assigned to neurological surgery in a military hospital; also, credit will be allowed for practice requirement if assigned to neurological surgery.

Obstetrics and Gynecology.—Credit will be given for time spent in an obstetric-gynecological service in an Army or a Navy hospital under supervision on the same basis as a preceptorship, if these departments are supervised by diplomates of the board or recognized obstetricians-gynecologists. Full residency credit may be obtained if such hospital is approved for residency training. The board will review and give consideration to each individual case. Special request must be made for such credits.

Ophthalmology.—No stated credit. Each case is decided according to the time the candidate has spent assigned to a military hospital in ophthalmology and on other factors.

Orthopedic Surgery.—Up to one year of residency credit is given. Each case is determined on its own merits.

Otolaryngology.—Credit is given but each case is determined on its own merits.

Pathology.—Allows liberal credit toward training when assigned to department of pathology but candidates must first have had a minimum of one year residency in an approved civilian department of pathology.

Pediatrics.—One year of credit, regardless of assignment, towards two year practice requirement.

Physical Medicine and Rehabilitation.—Maximum of one year credit in related field; full credit if in the specialty.

Plastic Surgery.—Credit given on individual basis, considered on candidate's merits.

Preventive Medicine.—Credit for training and experience in public health or aviation medicine while in military service will be considered on an individual basis, depending on the type of service.

Proctology.—One year in fulfillment of either general surgical or proctologic requirements.

Psychiatry and Neurology.—Training and experience credit toward requirements for examination will be granted for military duty in the present emergency under certain conditions. This policy relates to active military medical duty since July 1, 1950. One year of training credit will be granted for one year spent in full time psychiatric and/or neurological duties. Additional training credit will be granted for that amount of time spent in approved training programs. Experience credit will be granted for any remaining time spent in full time psychiatric and/or neurological assignments. Double credit will not be granted for any single period of time.

Radiology.—Maximum of one year's credit if assigned to full time radiological duties.

Surgery.—If a candidate has served in a government hospital or hospitals fully approved for residency training, such training will be acceptable to the board. Military credit may be extended to those candidates who have served in nonapproved hospitals provided that the candidate has had a satisfactory surgical assignment with adequate and diversified clinical material and provided further that his work in surgery is carried out under the supervision of a surgeon acceptable to the board. Any credit extended in the latter category will be considered preceptorship credit and not residency credit.

Thoracic Surgery.—Credit for military service will be decided on an individual basis.

Urology.—No credit for training but credit for one year of practice requirement if training was complete when entering service.

Medical Officer's Professional Training Record.—The Surgeons General of the armed services have distributed a booklet prepared with the assistance of the Council and the Advisory Board for Medical Specialties which is designed to help prospective candidates for certification to maintain an accurate account of work done in the military service. This record will constitute part of the credentials to be submitted to the board on application for certification. The booklet has been printed by the Office of the Secretary of Defense and is distributed by the offices of the Surgeons General to the personnel of their departments. It is highly important that prospective applicants obtain a copy of the "Medical Officer's Professional Training Record" and that they submit their credentials for evaluation by the respective specialty board.

AMERICAN BOARD OF ANESTHESIOLOGY

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CERTIFICATION

1. *Method of Making Application.*—Application for certification may be made after a physician has completed one year of approved training. Application must be made to the secretary on a form prescribed by the board, procured only on written request of the applicant, and must be filed at least six months prior to the date of examination.

The secretary cannot make any eligibility rulings. These are made only by the entire board on recommendation of the appropriate committees after reviewing the candidate's formal application.

2. *Requirements.*

A. Each applicant before he shall become eligible for certification in anesthesiology, must:

1. Have graduated from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association (graduates of foreign medical schools not recognized by this council will only be eligible to take the board examinations after they successfully pass or are eligible to take the examination given by the National Board of Medical Examiners), and have completed an internship of not less than one year in a hospital approved by the same Council, or its equivalent.

2. Establish in a manner satisfactory to the board that:
    (a) He is a physician duly licensed by law to practice medicine.
    (b) He is of high ethical and professional standing.
    (c) He has received adequate special training in anesthesiology.

3. Submit proof to the board that he has limited his practice to anesthesiology as a specialty for five calendar years of which at least two have been in formal clinical training approved by the board, and that he intends to continue to limit his practice to anesthesiology.

4. Be a member in good standing in the American Medical Association, the state and local county medical society or comparable national medical society approved by this board. He must be a member in good standing of the American Society of Anesthesiologists, Inc.

5. Prove to the satisfaction of the board by such written, survey, oral and practical examinations as the board may prescribe that he is qualified to practice anesthesiology.

6. Personally prepare such case history abstracts of personally conducted procedures pertaining to anesthesiology as the board may specify.

B. Each applicant shall be classified for the purpose of examination and shall be examined in such a manner and under such rules as the board may prescribe.

3. *Examinations are conducted as follows:*

A. Written Examination: Eligible applicants may take this examination on completion of two years of clinical training approved by the board. Written examinations are held annually in approximately twelve locations throughout the United States on the third Friday in July. Written examinations are of the multiple choice type covering the following subjects: anatomy, chemistry and physics, pharmacology, pathology and physiology. A passing grade, as determined by the board, is required.

B. Survey Examination: Started in 1949 this examination is conducted by one or more diplomates of the board who visit the applicant in his own locality to observe him in the practice of anesthesiology. The examiner may interview other individuals in the community to determine whether the candidate is of high ethical and professional standing. This examination is conducted on completion of four years limited to anesthesiology (including two years of approved clinical training).

C. Oral Examination: On completion of a favorable survey examination and five years limitation of practice to anesthesiology an applicant is eligible to appear for oral examination. However, at least six months must elapse between the written and oral examination. Examinations are conducted semi-annually, in April and October. Examiners consist of directors of the board plus diplomates who assist as associate examiners. Oral examinations cover all phases of anesthesiology as do the written examinations; emphasis, however, is placed on clinical application.

D. Practical Examination: At the discretion of the board practical demonstrations may be required of the management of the candidate's clinical practice in his local surroundings. This may include inspection of clinical records, reports of departmental activities, library facilities, available apparatus and demonstrations of application of anesthetic agents, methods and all technics included in anesthesiology. The candidate will also be appraised as to whether he is of high ethical and moral standing in his community.

Applicants are entitled to three consecutive opportunities at yearly intervals to satisfactorily complete the written examination. This three year period begins on the date an applicant is first declared eligible for the written examination.

Applicants are entitled to no more than two survey examinations. Should the first survey report be declared unfavorable a candidate will not be permitted to appear for the oral examination until a favorable report is received. At least one year must elapse before a resurvey examination is given.

Oral examinations are given at six month intervals. An applicant is entitled to one oral examination each year for a three year period. In the event that a candidate fails an oral examination, at least 12 months must elapse before he may reappear for the oral examination. The three year period begins on the date an applicant is first declared eligible for the oral examination.

Failure to take an examination constitutes an opportunity just as much as failure to pass an examination. Applicants who fail to exercise the privilege of written or oral examination and/or who fail to pass any part of the written or oral examination within the three year periods will be required to file a new application under the current rules and regulations, pay a new application fee, and submit to both written and oral examination.

A fee of $15.00 will be charged for each reexamination for candidates who file application January 1, 1950 or later. The board may, however, at its discretion deny a candidate the privilege of reexamination.

The board reserves the right to limit the number of candidates to be admitted to any examination.

REAPPLICATIONS

Applicants whose original applications were declared void through failure to take the examination will be required to file a new application under the current rules and regulations, pay a new application fee, and submit to both written and oral examination. Applicants whose original applications were declared void through failure to pass the examination must submit proof of an additional year of approved training before their re-applications will be considered. This re-application will be considered under the current rules and regulations, and the applicant must pay a new application fee and submit to both written and oral examination.

FEE

The fee shall be $125. At least $50 shall be paid on filing the application, of which sum $35 shall be returned if the candidate is not accepted for examination. The remainder ($75) shall be paid before taking the examination.

The board is a nonprofit organization. The fees for examination and certification have been computed on a basis of cost of maintaining an administrative office and conducting examinations. The board reserves the right to increase the fee when necessary.

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PURPOSES

The board was established primarily to determine the competence of physicians who specialize in dermatology and syphilology. It has therefore established minimum standards of education and training, examines applicants and certifies properly qualified specialists in this field, prepares lists of those qualified and arranges for the publication of such lists. Because of its interest also in the fulfillment of these standards, the board has a keen interest in the development of adequate training facilities, investigates institutions and individuals planning to train specialists, and lends its aid to the approval of those institutions and individuals offering adequate training in the specialty. The board, in addition, will always be glad to advise physicians desiring to enter this special field of medicine.

The board assumes the responsibility of determining the standards of knowledge to be acquired, but upon the candidate rests the responsibility of acquiring the knowledge to fulfill these standards.

REQUIREMENTS FOR ELIGIBILITY FOR EXAMINATION

I. General Requirements

1. High ethical and professional standing.

2. Graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association.

3. Satisfactory completion of an internship of not less than one year in a hospital approved by the same Council. During three years of the second World War, internships of nine months only were the rule. These were voted to fulfil the internship requirement. However, all internships completed on July 1, 1947 or thereafter must be of twelve months duration or longer.

4. A state license to practice medicine issued by endorsement of the certificate of the National Board of Medical Examiners or following examination.

5. Citizenship in the United States or citizenship—meaning native citizens—in Canada or Cuba.

II. Special Requirements

A period of study, after the internship, of not less than three years. One month or less in each of the three years may be spent as a vacation at the discretion of the chief of service. Vacations may not be postponed from one year to another, in other words, *they are not cumulative.* Candidates will not be eligible until three full years have elapsed since the beginning of training. This training may be obtained as resident, fellow or graduate student in clinics, dispensaries, hospitals or laboratories recognized by the Council on Medical Education and Hospitals of the American Medical Association and approved by the American Board of Dermatology and Syphilology as competent to provide a satisfactory training in dermatology and syphilology. This period of specialized training shall include:

(*a*) At least 12 months in an institution approved for three year training (less one month for vacation).

(*b*) Graduate training in the basic medical sciences which are necessary for the proper understanding and treatment of the diseases involved in this specialty. This training is incorporated in the curriculum of the institutions approved for three years.

Instruction in the following fundamental subjects as related to the skin is deemed advisable by the board: embryology, histology, chemistry, physiology, bacteriology, mycology, parasitology, pathology, immunology, serology, pharmacology and materia medica, and physics of physical therapy.

(*c*) Carefully supervised clinical and laboratory experience in the specialty.

(*d*) Annual examinations or other appraisal by the chief of service in the clinical, laboratory and public health aspects of dermatology and syphilology.

Training must be completed within a span of five years.

CREDIT FOR MILITARY SERVICE

1. All students in training who have served as physicians in the Army, Navy, or U. S. Public Health Service may submit a supplementary application, obtainable from the executive secretary, for evaluation of possible credit towards experience. Since the amount of credit must be agreed upon by members of a committee living in different, often widely separated cities, several months may be required before a decision can be rendered. The student is then notified.

2. Full-time dermatologic military service may be credited in part, at the discretion of the board, toward the required three years of training, provided a significant portion of approved formal training had been completed before induction. However, at least one year of the required three years' training, including instruction in the fundamental subjects deemed essential for an adequate dermatologic education, must be spent in an institution approved for a three-year training program by the board and by the Council on Medical Education and Hospitals of the American Medical Association.

The board strongly urges that the candidate supplement his military experiences by a further period of systematic and supervised dermatologic training before the examination.

3. Dermatologic work in the armed forces not credited as training may satisfy part or all of the required two years' additional dermatologic experience, the amount of credit depending on the circumstances.

Note: The supplementary application is not obligatory, but if submitted it must be done *prior to or at the time of filing application for examination.* Supplementary applications will not be considered until the preliminary registration has been filed.

PRECEPTORSHIP TRAINING

Candidates may spend up to two years of their training under the direction of a diplomate of the board, who has also been approved as a preceptor by the board. Not more than one half of each training day may be spent in the office of the preceptor; during the other half day, supervised work must be performed in an approved institution. The program which the student follows must conform to a schedule which an approved preceptor files with the board. The preceptor and the chief of service of the institution which the candidate attends are jointly responsible for the training received by the student. Preceptorship training may be taken during any two of the years of training. Time spent with an instructor who has not been approved by the board may sometimes count as experience but not as training. A list of approved preceptors is available from the executive secretary.

PRECEPTORS

A dermatologist who wishes to be considered for the responsible position of preceptor must fulfill the following requirements: he must be (1) a diplomate of the board of at least 5 years' standing; (2) a recognized teacher; (3) an active member or professor emeritus of the dermatologic staff of an institution approved for training by the board; and (4) recommended as suitable by the chief of staff of that institution. He must be willing to submit regular reports of the student's training on forms supplied by the board.

In order to be considered by the board, a specialist so qualified should make application to the secretary. Forms will be supplied on which the physical equipment and other facilities of the office are detailed, and on which the proposed plan of instruction is outlined, including the required institutional training. The application will then be acted upon at the next meeting of the board.

The status of a preceptee is not to be confused with that of an office associate.

PRELIMINARY REGISTRATION

All students beginning graduate training should write for the booklet of information, with whose contents they are expected to make themselves familiar, and for the preliminary registration form which must be filled out in detail and filed with the board at that time, even though plans may not be complete. This will enable the board to detect any deficiencies in basic qualifications or in the contemplated plan of training. No fee is involved.

ESTIMATES OF STATUS

Many candidates write the secretary outlining their training and asking for an estimate of their status and the further training required. The board's requirements are published to provide this information, and any candidate should be able to estimate his eligibility after studying these requirements. Individual officers or members of the board cannot and will not make such estimates. They will be made only by the Committee on Requirements, upon submission of the application for examination and the payment of the $25 registration fee which must accompany it. Personal interviews with officers of the board should not be requested at any time.

APPLICATION FOR EXAMINATION

In order that the Committee on Requirements may appraise carefully the qualifications of candidates, application must be made on the special blank, which may be obtained from the executive secretary. Applications should be filed early in order, to obtain full advantage of the loan sets of histopathologic slides available from the Armed Forces Institute of Pathology in Washington.

Applications must be filed before the closing date regularly published in the Examinations and Licensure section of THE JOURNAL. Dates of examinations are also published here. The completed application should be sent to the executive secretary, together with the required photographs and a *registration* fee of $25, which will not be refunded under any circumstances. No application will be considered until this fee is received. An *examination* fee of $75 is payable when the candidate is notified that his application is acceptable to the board. The total fee of $100 has been carefully computed and is used entirely for administrative purposes. Members for the board do not receive any compensation except for actual expenses connected with holding the examinations.

Make checks payable to American Board of Dermatology and Syphilology, Inc.

EXAMINATIONS

All applicants are now required to take and pass a written examination before they are eligible for the oral test, in whole or in part. The written examination on clinical, basic science and laboratory subjects will be held simultaneously at stated intervals in different parts of the country, approximately two months before the oral examination.

All applicants are also required to pass an oral, clinical and laboratory examination. This examination will be conducted in a clinic or hospital, where individual cases and clinical dermatology will be discussed with each candidate, as well as various subjects related to the skin such as histopathology, mycology, allergy and physics of physical therapy. The board reserves the right to add to this list other subjects within the field of dermatology and syphilology.

A candidate for a certificate may take his examination the next time it is given after he has completed three full years of training in the specialty, provided he makes application before the quota for that session is filled; this provision does not affect the regulations about the issuance of the certificate. (See Certificates.)

Examinations are designed to test the candidate's fitness to practice dermatology and syphilology as a specialty. The board will try especially to ascertain the breadth of his knowledge in the basic, as well as the clinical aspects of cutaneous medicine, to test his familiarity with the recent literature of dermatology and syphilology and to ascertain his general qualifications as a specialist in this branch of medicine.

Candidates who have signified their intention of taking the examination and who fail to appear at the scheduled time or who cancel their appointment after the sending of the final notice, shall forfeit the fee for the examination.

Except in special circumstances, applicants shall take the examination within the year following the filing of application and the deposit of the fee.

The board's records are confidential throughout. Examination marks will not be divulged to the applicant or to anyone else. The findings of the board are subject to its discretion and are final. Examination will be given only on this understanding.

REEXAMINATIONS

If the candidate fails or is conditioned in an examination he will be considered eligible for a second examination without further formal application, but must give at least 60 days' notice of his wish to do so. His acceptance for a particular examination will be dependent on the number of candidates already on the roster. As the cost of examining a candidate is approximately the same each time, whether the whole or only a part of the examination is taken, a reexamination fee of $50 will be charged. After a second failure to complete the examination successfully, the candidate must file a new application and pay the initial examination fee of $75.

If a candidate who has failed or been conditioned does not appear for reexamination before the expiration of three years, he will be required to make a new application and pay an additional fee of $75 before he can be reexamined.

After Dec. 31, 1953, if a candidate has failed to complete successfully all or part of the examination on two occasions, he will be required to submit proof of at least six months' additional training in an institution approved for three years before being eligible for further examination.

CERTIFICATES

A certificate will not be issued until the successful candidate has completed at least five years of dermatologic training and experience. The granting of this certificate by the board indicates that the holder of the certificate has had adequate training in dermatology and syphilology and has successfully fulfilled the requirements of the board.

Certificates will be issued only to members of the American Medical Association or to members of a similar society recognized as having the same purpose. A candidate does not become a diplomate until this requirement has been fulfilled.

Medical schools, hospitals, physicians, the Army, the Navy, the Public Health Service, and various government and philanthropic agencies, as well as the lay public, all utilize the certificate from this board as proof of adequate preparation in the field of dermatology and syphilology and of fitness of candidates for positions under their control. For this purpose, lists of those holding certificates from the board are available for inspection and are published from time to time in the Directory of Medical Specialists. Diplomates are identified in the Directory of the American Medical Association.

A certificate granted by this board does not of itself confer or purport to confer any degree or legal qualifications, privileges or license to practice dermatology or syphilology. The board does not intend to limit or interfere with the professional activity of any duly licensed physician. Its aim is to raise the standards of practice of dermatology and syphilology by encouraging improvement in the opportunities for and quality of training for specialists in this field of medicine, and to certify as specialists those who voluntarily comply with the requirements of the board.

Certificates will be issued only to physicians practicing in the United States and its possessions, in Canada and in Cuba.

A diplomate is required to confine his practice to dermatology and syphilology except for such emergency programs as have been approved in principle by the American Medical Association.

The names of all diplomates of the American Board of Dermatology and Syphilology are supplied promptly to the Directory of Medical Specialists, published by the A. N. Marquis Company, 210 East Ohio Street, Chicago, Ill.

ADVERTISING

It is not considered good form for a diplomate to advertise to the lay public the board's recognition of his training and ability. He should not use commercial methods and avenues. It is proper to include a statement or phrase such as "Diplomate of the American Board of Dermatology and Syphilology" in sending out announcement cards when opening an office or in inserts after the author's name in a medical publication when the association with a hospital, medical school, or medical society is also mentioned. If the diplomate is in doubt, it would be well to consult the board before placing his good name in jeopardy.

PUBLICATIONS OF THE BOARD

1. Booklet of Information. All candidates should request a copy and be familiar with its contents.

2. Booklet of Opportunities for Prospective Graduate Students, containing details of the training programs in the approved institutions. (Latest edition—1948.) A check or money order for $1.00 should accompany request for a copy. Please do not send stamps.

3. Syllabus of Graduate Training (presently out of print, but in process of revision).

(*a*) To inform the candidate of the field to be covered in his preparation.

(*b*) To aid the medical schools and the dermatology departments of medical schools and hospitals by outlining the scope of teaching deemed advisable for specialization in dermatology and syphilology.

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RESPONSIBILITIES OF THE BOARD

The major object of the board is to pass judgment on the competence of internists who desire certification—not to determine who shall or shall not practice internal medicine as a specialty.

The American Board of Internal Medicine is not concerned with any mechanism which gains special privileges or specific recognition for those physicians who have been certified in internal medicine. It has never been the intent of the board to define requirements for membership on the staffs of hospitals.

The board endorses completely the stand of the American Board of Surgery which "specifically disclaims interest in or recognition of differential emoluments that may be based on certification."

REQUIREMENTS FOR ADMISSION TO EXAMINATION AND CERTIFICATION

Each applicant for certification by this board must satisfy the qualifications listed below: (I) General Qualifications A, B, C, D, (II) Professional Qualifications A, B, C, D. For exceptions to the requirements C and D under Professional Qualification see paragraph G.

I. General Qualifications

A. All candidates must be citizens of the United States or Canada.

B. All candidates must present evidence of satisfactory moral and ethical standing in the medical profession.

C. All candidates must be active members in good standing in their county and state medical societies in their state of legal residence. Under unusual and exceptional circumstances the board reserves the privilege of modifying this requirement. (This ruling shall not apply to commissioned officers of the United States regular Army, or Air Force, or Navy, or United States Public Health Service or to full-time staff members [physicians] of the Veterans Administration who are otherwise Service Fellows of the American Medical Association.)

D. Canadian citizens must be active members of the Canadian Medical Association before admission to examination.

II. Professional Qualifications

A. Graduation from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association at the date of graduation.

B. Satisfactory completion of an approved internship of not less than twelve months.[1]

C. Residency or fellowship approved by the Council on Medical Education and Hospitals of the American Medical Association in internal medicine according to the following plan (Plan A) or one of the alternate plans described under paragraph D.

Plan A: A residency or fellowship in internal medicine for a period of not less than three years in a hospital or other institution approved by the Council on Medical Education and Hospitals of the American Medical Association for residency or fellowship in internal medicine. In such instances in which a resident's nominal status differs from that of the other hospital residents, he must furnish the board with certification by the chief of the medical service and the medical director of the hospital that he actually performed the full duties of a resident as a bona fide member of the residency program. In addition, two years of practice of clinical internal medicine will be required. The board will accept the following equivalents as satisfying one year only of the three years of residency or fellowship to which this paragraph refers. (Two years must be in the field of general internal medicine.)

1. If twelve months of a two year approved internship in a hospital approved for residency training in internal medicine is limited to the medical service and medical specialties, credit will be granted for a first year of assistant residency. The remaining two years of residency training must be in the general field of internal medicine. Certification by the chief of the medical service as to compliance with this requirement must accompany application.

2. One year of approved residency in one of the medical specialties: allergy, cardiovascular disease, gastroenterology, hematology, pulmonary diseases, neurology, pediatrics, psychiatry, dermatology and syphilology.

3. One year of approved residency in pathology.

4. One year as a graduate student or as an instructor in an approved medical school on a full time basis in bacteriology, biochemistry, pathology, pharmacology, physiology or internal medicine.

5. An advanced degree in the medical sciences, provided the work has been done and degree obtained after graduation from medical school.

Note.—Graduate training credit for the time involved will be allowed candidates who take and satisfactorily complete postgraduate courses in internal medicine or the basic medical sciences provided by accredited medical schools on a full time basis. This ruling shall not apply to courses of less than three months' or more than twelve months' duration. A certificate of creditable performance, based in part, at least, on a formal examination on completion of the course, will be required.

Note.—Fellowship or research assignments not approved by the Council on Medical Education and Hospitals will require certification by the chief of service that such assignment was equivalent in graduate training opportunities and patient responsibilities to that of an approved residency in internal medicine or the subspecialties recognized by the board. This certification must be presented before application is filed.

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[1] During the period in which the 9-9-9 program was in effect an approved internship of nine months will satisfy the requirement of twelve months. A residency of nine months is considered as nine months only.

D. *Alternate Training Plans:* The board firmly believes that the plan of intensive training prescribed above offers the best opportunity for a young physician to prepare himself to meet his responsibilities as a specialist in internal medicine. It is recognized, however, that capable individuals may accomplish the same result in a longer period of time during which the training is less intensive. The board realizes that a number of medical graduates cannot follow the shorter and more desirable plan either because suitable residencies are not available or, in some instances, because of personal and economic reasons. Accordingly, the board has modified its previous regulations governing eligibility for admission to examination. In doing so the board has not modified its standards of examination. It has liberalized its eligibility requirements for admission to examination by accepting half time formal training and the practice of internal medicine under favorable circumstances as to professional and hospital contacts, in lieu of part of the full time requirements. It is hoped that by this means exceptional individuals may acquire a knowledge of medicine and experience in its application sufficient to qualify for examination.

The program previously described (Plan A), which consists of three years of formal training in an approved residency or its equivalent, following internship, and two additional years in the practice of internal medicine, is recommended by the board. Variations in this program are now subject to the following regulations.

1. In all instances, one year of approved internship and one year of approved residency will be required, except as indicated under Plan G. The graduate training credit of one year heretofore granted as a result of active duty as a commissioned officer in the armed forces during the period beginning Dec. 7, 1941 and ending Jan. 1, 1947 and during the Korean emergency with effective date June 1, 1950, may not be applied in satisfaction of the one year of approved residency referred to in Plan D, E, or F unless the candidate's assignment is considered by the board to have been equivalent to an approved residency.

2. *Following one year of internship and two years of approved* residency,[2] the remaining requirements may be satisfied by:

Plan B; that is, by two years of half time formal training followed by two years of practice limited to internal medicine, or by

Plan C; that is, by five years of practice limited to internal medicine.

3. Following one year internship and one year of approved residency, the remaining requirements may be satisfied by:

Plan D[3]; that is, by four years of half time formal training followed by two years of practice limited to internal medicine; or by:

Plan E[3]; that is, by two years of half time formal training followed by five years of practice limited to internal medicine, or by:

Plan F; that is, by eight years of practice limited to internal medicine.

4. In every instance at least two years of practice in internal medicine must be included, but in instances in which four years of practice are substituted for one year of residency, only one additional year of practice will be required; when more than eight years of practice are substituted for two years of residency an additional year of practice will not be required.

5. Physicians who have practiced internal medicine for twelve years following an approved internship may qualify for the examinations without further training (Plan G).

Half time formal training under expanded plans B, D and E is defined as follows:

1. Half-time[3] as an instructor in clinical medicine in a recognized medical school in the United States or Canada.
2. Half-time[3] in a research fellowship sponsored by a recognized medical school in the United States or Canada.
3. Half-time[3] as *a graduate student in an approved graduate* medical school in the United States or Canada.

E. Practice Requirements: A period of not less than two years of practice in the general field of clinical internal medicine or in the more specialized branches of medicine. (See exceptions, Section D, paragraph 4.) This requirement may be satisfied by independent practice or in association with a recognized internist, following completion of requirements of formal training.

F. Graduates of Foreign Medical Schools: All candidates who are graduates of foreign medical schools must meet the following requirements as a minimum:

1. The physician must be a citizen of the United States.
2. The physician must furnish proof in the form, and to the extent deemed adequate by the Board that he (or she) has graduated from a medical school after completing a four year full time course in medicine.
3. The physician must have a license to practice in one or more states of the United States, and have been in active practice confined to internal medicine within the state of legal residence for at least two years.
4. The physician must be an active member of the county and state medical societies in which he (or she) has established legal residence.
5. Graduates of foreign medical schools prior to 1930 may qualify under the alternate plans of the board the same as graduates of approved medical schools in the United States.
6. Graduates of foreign schools in 1930 and thereafter must, in addition to all other requirements, satisfy the requirements of one year of approved internship, and three years of approved residency or fellowship in the United States, and at least two years of practice limited to the field of Internal Medicine in the United States. If, however, their school of graduation is "recognized" by the Council on Medical Education and Hospitals of the American Medical Association, graduates of foreign schools may qualify under the various plans of the board the same as graduates of approved Medical Schools in the United States.

G. Candidates Graduating Prior to 1937: The requirement of three years of graduate training will not apply to candidates graduating from approved medical schools in the United States and Canada in 1936 or previous thereto, provided such candidates have limited their work to the field of internal medicine for at least two years, and provided each candidate is recognized as an internist by his colleagues in his community.

H. "Preceptor Training": Preceptor type training is not recognized in satisfaction of any part of the three year requirement of formal graduate training.

I. Credit for service in the Armed Forces may be applied as follows:

1. Active duty prior to Jan. 1, 1947, may be applied for not more than one year as residency or practice credit, regardless of assignment. Service beyond one year may only be applied as practice credit on certification of former chiefs of service that assignments were in the field of Internal Medicine on a full time basis in the care of clinical patients, largely on one's own responsibility.
2. Active duty from Jan. 1, 1947, to June 1, 1950, may only be applied as practice on the certification of former chiefs of service as referred to in paragraph 1, unless the candidate served officially as a resident in a service approved for residency in internal medicine while there.
3. Active duty subsequent to June 1, 1950, may be applied for not more than one year of residency or practice credit, regardless of assignment. Service beyond one year may only be applied as practice credit on the certification of former chiefs of service as referred to in paragraph 1, unless the candidate served officially as a resident in a service approved for residency in internal medicine while there.

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[2] For the second year of approved residency one of the equivalents described under C-Professional Qualifications may be substituted.

[3] Half time formal training is regarded as four hours per day for six days per week. It is required that half time formal training be verified by the head of the department. Verification must accompany application.

J. Graduates of the Chicago Medical School prior to approval by the Council on Medical Education and Hospitals of the American Medical Association and graduates of the Middlesex School of Medicine who received their degree in medicine prior to Jan. 1, 1951, and who have fulfilled all of the requirements set forth in *Section 2*, (Requirements for Admission to Examination and Certification), and an approved residency or fellowship of three years' duration (Plan A) and two years of practice in internal medicine may apply, and at the discretion of the Executive Committee or of the board be admitted to examination.

PRINCIPLES OF TRAINING

The American Board of Internal Medicine is interested in the fact that the candidate has embarked on a career of study voluntarily and has thereby expressed the desire to excel and to participate personally in the world's progress in medicine.

Preparation must be based on years of continuous thoughtful study. Therefore, in suggesting a program for those who wish advice, the board hopes to assist the candidates to avoid inferior and superficial programs which may lead to failure and disappointment in later years.

The board believes that all internists should have a sound fundamental knowledge of anatomy, bacteriology, biochemistry, pathology, pharmacology and physiology. Such knowledge is essential to the continued progress of any internist. The board anticipates that adequate training will be obtained in the basic sciences as applied to internal medicine during a formal three year residency program.

The board wishes to emphasize that time and training are but a means to the end of acquiring a broad knowledge of internal medicine which the candidate must demonstrate to the board in order to justify it in certifying that he is competent to practice internal medicine as a specialty. The responsibility of acquiring the knowledge rests with the candidate. The responsibility of maintaining the standards of knowledge required for certification rests with the board.

APPLICATION

Candidates for examination must make their application on a prescribed form, which may be obtained from the office of the Executive Secretary-Treasurer.

The application must contain a record of the candidate's premedical and medical training as well as of internships, residencies, graduate study, hospital or dispensary staff appointments, teaching positions, service in the armed forces, membership in medical societies, medical papers published and the names of four well known internists to whom the board may write for professional and character reference.

The application must be accompanied by one recent, signed photograph of the candidate mounted on the application, and the registration and examination fee of $40.00 to cover the written examination, of which $25.00 will be refunded if the application is disapproved. Upon application for admission to the oral examination, an additional fee of $50.00 will be required. Upon notification of certification by the board, a further fee of $10.00 to cover cost of certification, will be required.

The requirements of graduate training and two years of practice in the field of internal medicine must be satisfied before a candidate is eligible to apply for admission.

METHOD OF EXAMINATION—WRITTEN AND ORAL

The examinations for certification by the board comprise two parts: Part I is written; Part II is clinical and is an oral examination. The written examination is held simultaneously in different sections of the United States and Canada. Effective Jan. 1, 1949, one written examination will be given each year. This examination will be held on the third Monday in October. This examination is divided into a morning and afternoon period for each of which three hours are allowed. The questions are of the multiple choice type, framed in such a manner as the board elects and designed to test the applicant's knowledge of applied physiology, anatomy, physiological chemistry, pathology, bacteriology and pharmacology as related to internal medicine, and his basic clinical acumen.

Candidates must pass the written examination before admission to the oral examination will be authorized. The oral examination is conducted under the direct supervision of the board. It is held near the time and place of the annual meetings of the American Medical Association and the American College of Physicians. The examination is conducted at the bedside of the patient. Each candidate is assigned two or more patients and is expected to be sufficiently familiar with whatever problems present themselves to satisfy the board of his clinical expertness.

Normally only two oral examinations are given each year. The board may, however, schedule special oral examinations if necessary. Announcements of all examinations will appear in the *Annals of Internal Medicine* and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. Applications cannot be accepted until the schedule is announced in the publication referred to, and cannot be accepted after the closing date as announced.

REEXAMINATION—WRITTEN AND ORAL

1. Restrictions on the number of written examinations for which a candidate may apply have been waived. The interval between all written examinations will be not less than one year; however, the executive committee of the board may, in its discretion, require a longer period, or may for reasons it considers adequate, deny admission to reexamination. A fee of $15.00 is required for each written reexamination. The fee is due upon application for reexamination.

2. Restrictions on the number of oral examinations for which a candidate may apply have been waived. The interval between all oral examinations will be not less than one year, however, the executive committee of the board may in its discretion require a longer period or may for reasons it considers adequate, deny admission to reexaminations. A fee of $40.00 is required for each oral reexamination. The fee is due on application for reexamination.

3. This ruling does not make it mandatory for a candidate to repeat the examination within the specified time limit. Candidates may elect a longer interval in the case of both the written and oral examinations.

CANCELLATIONS

Effective July 1, 1949, any candidate who cancels his assignment for a written or an oral examination after Sept. 1 will be required to pay a special fee in the amount of $10.00 before a subsequent examination, unless his cancellation was due to a cause deemed adequate by the board to exempt him from such special fee. This provision becomes necessary because of the large number of cancellations after complete arrangements have been made, and the expense incident thereto.

CERTIFICATES

The certificate issued by the American Board of Internal Medicine shall be in such form as to comply with the articles of incorporation and the by-laws and shall be signed by the officers and members of the board and shall bear the official seal of the board.

Certificates of the board will be issued to candidates who have satisfactorily completed the written and oral examinations and have been found qualified by the board to practice the specialty of internal medicine. Specialty certification will be designated on the certificate, for those so certified.

SUBSPECIALTY BOARDS

Allergy, cardiovascular disease, gastroenterology and pulmonary diseases are recognized specialties.

Each subspecialty application is individually considered and acted on by the subspecialty board concerned. The candidate is not eligible for examination until his application has been approved by the subspecialty board concerned and confirmed by this board.

All candidates must pass the written and oral examinations in internal medicine before admission to examination in a specialty of medicine referred to. The specialty examinations are oral only and may be taken at any regularly scheduled oral examination subsequent to the candidate's certification in general medicine. Announcements of the oral examination will appear in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and the *Annals of Internal Medicine.*

Application forms will be forwarded on request to the office of the Executive Secretary-Treasurer and should be returned to his office when completed.

INFORMATION ON CERTIFICATION IN ALLERY BY THE AMERICAN BOARD OF INTERNAL MEDICINE

1. Two years, full time, including training both in allergy and internal medicine in an approved allergy clinic and hospital; or

2. One year, full time, including training in allergy and internal medicine in an approved allergy clinic and hospital, and two additional years of attendance and participation at least two half days weekly at an approved allergy clinic; or

3. Five years of attendance and participation at least two half days weekly at an approved allergy clinic; or

4. Twelve years in the practice of allergy after fulfilling the professional qualifications for certification in internal medicine, with evidence of sustained scientific interest.

5. All candidates who desire consideration in allergy must be certified in internal medicine before applying for admission to examination in allergy.

The candidate should be prepared for oral and clinical examination in the anatomy, pathology, physiology and biochemistry of reactions of hypersensitivity. This will include immunology, immunochemistry, atopy, allergy of infection, collagen disease, and experimental hypersensitivity. He should be proficient in clinical diagnosis, laboratory procedures, and in the treatment of allergic diseases. He should be familiar with the Physiology of respiration, especially as modified by bronchial asthma and pulmonary emphysema and with the pharmacology of drugs used.

NOTE.—Fellowship or research assignments not approved by the Council on Medical Education and Hospitals will require certification by the chief of service that such assignment was equivalent in graduate training opportunities and patient responsibilities to that of an approved residency in allergy recognized by the board. This certification must be presented before the application is filed.

RECOMMENDATIONS OF THE SUBSPECIALTY BOARD ON CARDIOVASCULAR DISEASE CONCERNING QUALIFICATIONS OF CANDIDATES FOR CERTIFICATION IN THIS SUBSPECIALTY

The applicant should be of good character and excellent standing in his community, as attested by letters from sponsors of known integrity.

The applicant should have reached a state of maturity, compatible with the acquisition of sufficient factual knowledge and experience to form a basis for sound judgment. The board believes that only exceptional individuals are sufficiently mature for this subspecialty before the age of thirty-five years or less than ten years after graduation from medical school.

The board will make exception to this general rule of admission to examination, under unusual circumstances, largely to avoid injustice to the younger men of outstanding ability.

The candidate must have given clear evidence of his deep and constant interest in cardiovascular disease over a period of years. The board is particularly interested in recommending for examination those applicants whose records indicate that their interest in cardiovascular disease will probably be sustained throughout life, and that their knowledge of the subject will constantly grow. Achievements in the field of research are regarded as evidence of such interest, but publication of articles or prolonged training in research work is not considered essential. Consideration will be given to the circumstances of each applicant's training and experience; those who have been in communities and institutions which offered excellent opportunities for contributions to the knowledge of cardiovascular disease will be expected to have made such contributions. Consideration will be given to the difference in experience of those whose opportunities for research have been more limited.

In most cases, it is deemed essential that the candidate, after thorough training in internal medicine, shall have received at least one full year of postgraduate education in cardiovascular disease, preferably under the guidance of a person known to be experienced and sound. Qualifications will be appraised by the Cardiovascular Board and admission of the applicant to the examination will be determined by a majority opinion of the board.

Every candidate admitted to the certifying examination in cardiovascular disease will be expected to possess specialized knowledge of the kind indicated below. This list is by no means complete; it is intended to indicate the nature, rather than the extent, of the knowledge every applicant should have. In terms of its scope it should be regarded as the minimum, not the maximum. Persons possessing special knowledge and training in peripheral vascular disease may be expected to have a higher standard required in the examination in that portion of the field than in the certain details of other branches of cardiology, and the converse may be similarly applied.

1. Full and accurate knowledge of the anatomy of the normal and diseased heart, including its relationships to the external chest and to the other mediastinal structures. A comprehensive anatomical knowledge of all important blood vessels including their aberrant locations.

2. A thorough knowledge of the normal and pathological physiology of the heart and peripheral circulation.

3. Detailed knowledge of the diagnostic signs which permit the recognition of all important diseases of the heart and blood vessels, such as arteriosclerosis, arteriosclerotic heart disease, syphilitic heart disease, rheumatic heart disease, constrictive pericarditis, auricular and ventricular septal defects, coronary thrombosis with myocardial infarction, thromboangitis obliterans, Raynaud's syndrome, coarctation of the aorta, aneurysm, patent ductus arteriosus, periarteritis nodosa and lymphedema.

4. Familiarity with the special methods used in the study of diseases of the heart and blood vessels. In the case of the heart, these include such technics as electrocardiography, roentgenography, catheterization and angiocardiography; in the case of vascular disease, such technics as the use of the oscillometer and thermocouple, arteriography, and venography, reflex vasodilatation, the cold pressor test, color changes with elevation, dependency, temperature, etc.

5. Accurate knowledge of the pathologic changes associated with the more important diseases of the heart and blood vessels, sufficient to enable the candidate correctly to evaluate the pathologic condition from gross specimens or microscopic sections.

6. Fairly extensive and detailed knowledge of the pharmacology relating to heart and blood vessels. This must include full knowledge of the important relationship of the autonomic nervous system both to the heart and to the peripheral vessels, and the effects of stimulation or paralysis of the various parts of the autonomic system by drugs or by surgical methods. The candidate should be intimately familiar with the use and effects of such important drugs as digitalis, quinidine, heparin, papaverine, epinephrine, dicumarol, penicillin, diuretics, sedatives, etc.

7. A sound understanding of the indications for conservative therapy, as well as for surgical procedures, in cardiac and peripheral vascular diseases (patency of the ductus arteriosus, arteriovenous anastomoses, constrictive pericarditis, scalenus, anticus syndrome, etc.).

In summary, it is the desire of the American Board of Internal Medicine and its Subspecialty Board in Cardiovascular Disease that physicians shall not be admitted to the certifying examinations unless they have exceptional qualifications as individuals and as experts in this subspecialty of medicine.

INFORMATION ON CERTIFICATION IN GASTROENTEROLOGY BY THE AMERICAN BOARD OF INTERNAL MEDICINE

A. Professional Standing

The candidate must have at least two letters from recognized internists or gastroenterologists, which must attest to the candidate's professional qualifications and ethical standing, whether he is specializing in gastroenterology and if not entirely, giving an opinion as to approximately how much of his work is devoted to it.

B. Education

1. The candidate must admit proof of adequately supervised training in the recognized gastroenterologic procedures, including gastric and hepatobiliary function tests, proctosigmoidoscopy and gastrointestinal roentgenology (film interpretation).

2. The candidate must present evidence of fulfilment of one of the following requirements:

- (*a*) Formal graduate course in gastroenterology, full time for at least eight months in a recognized institution.
- (*b*) Residency or fellowship for at least one year in gastroenterology under tutelage of a recognized specialist.
- (*c*) In the absence of (*a*) and (*b*), attendance and active participation in a ward service or in a gastrointestinal clinic, recognized in standing, for at least five years.

3. If requirements (*a*) or (*b*) under the above heading have been met, only three years of (*c*) will be required.

C. Practice

At least 60 per cent of the candidate's work must have been devoted to gastroenterology for at least three years before application.

INFORMATION ON CERTIFICATION IN PULMONARY DISEASES BY THE AMERICAN BOARD OF INTERNAL MEDICINE

I. Candidates for certification in pulmonary diseases shall fulfil the requirements of the American Board of Internal Medicine as to:

A. General qualifications.

B. Professional education.

C. Special training.

II. In addition to the General Requirements of the American Board of Internal Medicine, candidates shall:

A. Have completed special training period in pulmonary diseases to include at least a year's work in a sanatorium or hospital for tuberculosis and at least another year in the practice of pulmonary diseases in such an institution or in association with an older man competent in this field.

B. Submit an application to the Advisory Board in this specialty, which must be approved by all of the members of this board.

C. Pass the written and oral examination of the American Board of Internal Medicine.

D. Pass the oral and practical examination in pulmonary diseases.

AMERICAN BOARD OF NEUROLOGICAL SURGERY

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R. Glen Spurling, Vice Chairman, Louisville.
Howard A. Brown, San Francisco.
Eldridge Campbell, Albany, N. Y.
William V. Cone, Montreal.
Franc Ingraham, Boston.
Eric Oldberg, Chicago.
Bronson S. Ray, New York.
A. Earl Walker, Baltimore.
James C. White, Boston.
Harry Wilkins, Oklahoma City.
Leonard T. Furlow, Secretary-Treasurer, Washington University Medical School, St. Louis.

General Qualifications

1. Moral and ethical standing in the profession satisfactory to the board of directors.

2. It shall be discretionary with the board to accept for examination candidates who have been in practice more than six years but whose formal training fails to meet the full requirements.

3. Properly qualified candidates who are permanent residents in and citizens of other countries and are legally qualified to practice medicine there, and who have received their training in neurological surgery in the United States of America or Canada may apply for certification by the American Board of Neurological Surgery.

4. A special certificate may be issued to foreign (not United States of America or Canadian citizens) candidates who have received their training in neurological surgery in the United States of America or Canada and who are returning to their own country at the end of their training period, upon passing successfully the regular examinations of this board, without completion of the requirement of two years in the practice of neurological surgery. This special certificate shall be appropriately identified to distinguish it from the regular certificate of this board.

Preliminary Professional Standing

1. Graduation from a medical school which is acceptable to the American Board of Neurological Surgery.

2. Completion of a surgical internship of not less than one year in a hospital acceptable to the board, or its equivalent in the opinion of the board. (A one year rotating internship does not satisfy this requirement.)

Special Training

A period of graduate study in a recognized graduate school of medicine of not less than three years beyond the year of general surgical training, or in an approved hospital or under a sponsorship acceptable to the American Board of Neurological Surgery for the training of neurological surgeons. The training in clinical neurological surgery must be progressive and not obtained during repeated short periods in a number of institutions. It is preferable that at least two years of this training be had in one institution, and the board will not ordinarily approve periods of training in clinical neurological surgery of less than one year

This period of special training shall be of such a character that the relation of the basic sciences of anatomy, physiology, pathology, bacteriology and biochemistry is emphasized. Knowledge of these sciences as applied to practice of neurological surgery will be required in the examination. The board will not credit periods of study limited to these basic sciences of longer than six months in fulfillment of this requirement of three years of special training.

Training in diagnostic neurology should be obtained either in correlation with training in neurological surgery or independently. The candidate will be required to pass an examination in this subject.

An additional period of not less than two years in the practice of neurological surgery.

The above represents only the minimum requirements of training for the practice of neurological surgery in the opinion of the board.

APPLICATIONS

An application on the official application blank in such form as may be adopted from time to time by the Board of Directors, in order to be considered at any meeting, must be in the hands of the secretary-treasurer of the board not less than sixty days before the date of such meeting.

The secretary-treasurer of the board on receipt of an application shall forthwith make inquiries from those to whom the candidate refers and from such other persons as the secretary-treasurer may deem desirable, after which he shall forward the application to the Committee on Credentials. This committee shall consider the application and other information available and notify the secretary-treasurer its recommendation whether or not the applicant is acceptable. The certification of a candidate shall be approved by a majority of the members of the entire board at any meeting held for such certification.

PAYMENT OF FEES

The fee for certification, with or without examination, shall be $100.

The candidate for examination on filing his application shall accompany it with an application fee of $25. When notified by the secretary-treasurer that he is eligible for examination he shall send the examination fee of $75 to the secretary-treasurer at least two weeks before the date of the examination. The application fee will be returned if the candidate is not accepted for examination.

REEXAMINATION

A candidate who has failed in one examination is eligible for reexamination in the subject, or subjects, in which he failed, within three years, on payment of a reexamination fee of $25. A candidate who has failed in one examination and who does not apply for reexamination within three years or a person who has applied within that time but who has failed a second time will be considered a new applicant.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

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REQUIREMENTS

Each applicant before he may become eligible to receive such certificate of the board or other evidence of recognition:

1. Must have had conferred on him a degree in medicine by an institution of learning approved by the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

2. Must establish in a manner satisfactory to the Board of Directors that he is a physician duly licensed to practice medicine, and

   (*a*) that he is of high ethical and professional standing.

   (*b*) that he has received *at least minimal training* bilaterally, i. e., in both obstetrics and gynecology. Training in one branch only is no longer sufficient for qualification. The term "minimal training" as used here is at present defined as meaning at least one year of full time formal training, in the branch of either obstetrics or gynecology relegated to a minor role in a candidate's training program as related to his preference and plans for practice. The required total of formal training is three years.

   (*c*) that physicians otherwise qualified, who were graduated before Jan. 1, 1939 and whose required training was in obstetrics or gynecology alone, and who have confined their practice to obstetrics or gynecology for at least five years immediately prior to application be accepted for examination as candidates for certification in either obstetrics or gynecology. In all other respects requirements for eligibility remain the same as for those physicians graduated since 1939. Bilateral training is required. At least a fundamental knowledge of both obstetrics and gynecology is essential regardless *of whether a candidate's practice is limited to one or* the other branch.

3. Must make application for investigation of his credentials and a survey of his character.

4. Must assure the board that he is limiting his practice to obstetrics and/or gynecology and that he intends to continue to do so, except for possible military duties. Candidates will be accepted only if, on application or by the time of their examination, they have been in practice limited to the specialty for a minimal period of two years following completion of their specialty training. This change in requirements permits a qualified candidate to make his application in the second year of his post-training practice period. The sole exception to the two year limitation is practice for the Frontier Nursing Service, Inc., of Kentucky.

This board will not accept applicants for examination who are not full citizens of the United States or of Canada, though they may be residents of either country. Foreign born applicants must have been certified by either the National Board of Medical Examiners or licensed to practice medicine in the United States or Canada by a state or provincial board of licensure. Notarized statements, *not* original citizenship papers, must be furnished when the application is filed attesting to the fact of full citizenship in the United States or Canada, if the applicant is foreign born. Further, there will be required a probationary period of at least three years from the date of licensure in the practice of medicine in these countries before such a candidate may be admitted to examination.

Applicants who have been certified by one of the other American specialty examining boards will not be eligible for certification by this board until they have relinquished the certificate previously conferred. (In making application to this board for certification, applicants, for some time back, have agreed to revocation of their certification by this board if and when they apply for and receive certification by any other American board, except on special action to the contrary taken by the American Board of Obstetrics and Gynecology.)

The board has ruled that physicians who accept male patients in their private or other practice, for operative or other care, cannot be regarded as specialists in obstetrics and gynecology, except by special ruling when this is related to active military duty.

This board deprecates engagement in fields of practice other than that in which candidates profess to be specialists. The board does not exclude from examination, however, obstetricians-gynecologists who practice abdominal surgery and urology in the female because of the correlation of these activities. The sole exception to this provision is that it is permissible for candidates of the American Board of Obstetrics and Gynecology to participate in emergency care plans operated under the auspices of district, county, or state medical societies.

Military service or any other similar patriotic service, such as work with Selective Service boards, etc., have not been construed as nonlimitation of practice in violation of the board regulations. Officers (Regular or Reserves) certified by this board and on duty with "Family Dependent Services" are expected to be permitted to limit their work to the specialty, as in civilian life, and not to be engaged regularly in general or other practice.

The minimal requirements for all candidates will be uniform as follows:

1. Completion of at least one year intern service in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association. This need not be a general rotating internship, although this latter is preferred.

The board accepts the fifth or "intern" medical school year required at some schools in lieu of the usual fifth or intern "clinical training" year following graduation.

2. A minimum of seven years of training and practice after the intern year, to include at least three years of residency training in obstetrics-gynecology in approved institutions, or adequate preceptorship training. (See Section on Preceptorship Training.) Following completion of acceptable training two years of post-training practice limited to the specialty are required.

This leaves two other years in the total of eight years following graduation. During the early part of this period other training in branches, especially such as general abdominal surgery (see next paragraph), or in pathology, urology, internal medicine, or general practice is desirable and accredited on this total time period. The last two years of such an eight year period must be in practice limited to the specialty. (See paragraph 4 under Requirements.)

The Council on Medical Education and Hospitals of the American Medical Association listed for the first time in 1950 (*J. A. M. A.*, April 15, 1950, pages 1216, 1204-1211), 149 inspected and approved one year residencies in general surgery "as offering training in general surgery . . . in preparation for residencies in surgical specialties." Such residencies are recommended by this board as desirable additional preparation, particularly when they provide opportunities for training in abdominal surgery. (See Internship and Residency issues of The

JOURNAL for lists.) As noted above, such service may be included in the total minimal eight years required after graduation.

Post-training practice period may include full time medical school or other positions within the specialty, actual practice within the specialty as an assistant, associate, or independently.

Periods of residency in obstetrics-gynecology in excess of the required three years will not be accepted as a substitute for any part of the two required years of post-training practice except in the cases of men advancing from their residency training into and planning to remain in full time teaching positions in medical schools and their affiliated hospitals.

3. Basic science training should emphasize the relation of the basic sciences, anatomy, pathology, physiology, biochemistry and bacteriology, to the application of surgical principles which are fundamental in all branches of surgery. More especially, for this specialty there should be training in infertility, endocrinology, oncology, irradiation therapy, electrotherapy, psychosomatic medicine and other nonoperative methods of diagnosis and treatment. In addition, the candidate must understand and be trained in the care of emergencies, shock, hemorrhage, blood replacement, electrolyte and fluid balance, protein and nitrogen balance, choice of anesthetics, chemotherapy, acidosis and alkalosis, narcotics and hypnotics, wound healing, and so on.

Studies in the basic sciences may be integrated with the clinical work or may be given separately.

SPECIAL CREDITS AND RULINGS

The board conformed with the general acceleration in programs in medical education in that it will accept a period of nine "accelerated" months as an academic year in satisfying the requirement for each of three years of residency training. Such allowances can be made only for services during the wartime period of the official "accelerated program" and are not made for services before 1943 or after the discontinuance of this acceleration in 1946.

No formal graduate courses are required. If taken, credit will be limited to six months. Fellowships will be evaluated individually for credits by the Credentials Committee.

An applicant serving under military orders in an Army or a Navy hospital in an obstetrical-gynecological service under supervision will be given the same credit as if he were working under a preceptor, if these departments are supervised by diplomates of this board or recognized obstetricians-gynecologists. He may obtain full residency credit if such hospital is officially approved and listed for residency training in this specialty. The Credentials Committee of the board will review and give consideration to each individual case. Special request must be made for such credits.

A blank log-book entitled "Medical Officers Professional Training Record" is obtainable from the offices of the Surgeons General. This Record should be carefully kept and attested while in military service.

APPLICATION AND FEES

Application must be made on a special blank which will be furnished by the secretary's office and must be forwarded with the other required credentials and the application fee to the secretary's office not later than Oct. 1, 1953.

Candidates currently applying for admission to the examinations for certification are required to submit with their application a plain typewritten list of all patients admitted to the hospitals where they practice, for the year preceding their application or the year prior to their request for reopening of their application, with the diagnosis, pathological diagnosis, nature of treatment, and end result.

Candidates who have not had a minimum of three years' formal residency type of special training should utilize Preceptorship or Supplemental Training forms, obtainable from the office of the board, to submit in addition to the regular application form.

The application fee is $25 and is not returnable.

The examination fee is $100 and is payable when the candidate is notified of acceptance for examination. This fee is not returnable after the candidate has been officially accepted by the Credentials Committee and notified to report for examination.

If the candidate fails the Part II examination on his original application, he may exercise the privilege of one reexamination (see Examinations, Part II) but he will be required to pay a fee of $25 for such reexamination on making request that his application be reopened for this purpose. This ruling is effective on applications originally made after June 1, 1949.

The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners and associate examiners serve as such without compensation other than actual expenses.

Many prospective candidates write the secretary's office outlining in their letters their training qualifications and asking informally if they are eligible, if this training has been sufficient and, if not, what is still lacking. Any candidate should be able to make a fair estimate of his eligibility after studying these requirements.

Individual officers and directors cannot and will not make any such estimates or rulings. These are made only by the Credentials Committee after reviewing such requests made on a special form provided for this purpose, and submitted to the secretary for an appraisal with the fee of $15 to cover clerical expenses involved. This form is designated the "Application for Appraisal of Incomplete Training."

Personal interviews cannot be granted by the secretary or other directors of the board unless requested by the board.

Appraisal of Incomplete Training forms should not be filed if Application for Certification has already been filed. This is unnecessary duplication.

All candidates must comply with the board regulations in effect for the year in which the examination is taken, regardless of when the original application was filed.

Applicants declared ineligible for admission to examination may request reopening of their applications within two years of the filing date without payment of an additional application fee. When a candidate requests that his application be reopened, he must supply the board with information to justify such further consideration. A request for the reopening of an application declared ineligible by reason of insufficient training, nonlimitation of practice or similar items may not be approved in less than two years, although application may be made as specified above to avoid payment of an additional fee. This approval time may be reduced under exceptional circumstances. The request must have adequate supporting evidence of additional training and experience to warrant reconsideration. Preceptorship or Supplemental Training blanks should be used for such reports, and these will be supplied on request.

After two ineligiblity or postponement rulings on any candidate's application, an entirely new application must be submitted (with or without fee, according to current requirements) in order to bring data down to date. The essential feature of this should be evidence of additional training and experience.

Applicants declared eligible but who fail to exercise the examination privilege within three years of the date of filing the application are required to file a new and current application and to pay a new application fee.

Candidates should offer as sponsors or references two diplomates of this board with whom they are presently in contact, rather than men under whom they served as residents only. It is required that sponsors be from the candidate's community and currently acquainted with the candidate and his ability in his practice of the specialty.

On notice of acceptance for admission to examination, examination fee is due and also case records which should be shipped by the candidate to the secretary's office as soon as possible and not later than the date of the Part I written examination.

The candidate should make immediate acknowledgment of his notice of acceptance, at which time he will notify the secretary's office approximately when to expect his case reports.

EXAMINATIONS

Part I examinations are scheduled annually for early in February. Grades cannot usually be mailed from the secretary's office until after April 1 following the examination. Arrangements will be made for candidates to report in any convenient city where there may be a diplomate of this board to conduct or supervise the written examination which will be sent out from the board's office under sealed cover.

Special arrangement will be made through senior officers for conducting the written portion of the Part I examination for men in military service. Such candidates are requested to keep the secretary's office informed at all times of changes in their mailing addresses.

All applicants accepted for examination will be required to obtain a passing grade in both the written examination and a review of case reports (Part I), before becoming eligible for the oral-clinical and pathology examinations (Part II). The passing grade for the written xamination and case reports is 75 per cent. A candidate whose grade in either or both falls below 75 per cent is conditioned.

Reexamination for the removal of conditions in Part I may be taken after one year but within three years after the first failure, without payment of an additional fee.

Application for reexamination in Part I must be made by the candidate prior to Nov. 1 of any year.

Requests for reexamination in the written portion of Part I and requests for resubmission of case reports must be filed prior to Oct. 1, 1953.

Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held later in the year.

Requests for reexamination in Part II must be made prior to Feb. 1, 1954.

Candidates appearing for reexamination under a new application after two previous failures will not be required, if they have passed all or part of the Part I examinations on their first application, to repeat such examination items already successfully cleared.

PART I

Examination consists of:

1. A comprehensive written examination, conducted annually, including questions on both obstetrics and gynecology and related basic sciences. The written examination will be limited to a maximum period of three hours.

2. The filing, as early as possible, and not later than the date of the written examination, of 25 obstetrical and gynecological case reports, in condensed form. (See Sections on Case Reports.)

Results on case reports submitted for review prior to the written examination will be announced simultaneously with those of the latter; candidates who take the written examination but fail to submit case reports on or before the date of the written examination cannot be given the grade on the latter until their case reports have been received and graded.

PART II

The oral-clinical and pathology examinations given all candidates are conducted by the entire board and the associate examiners usually near the time and place of the annual meeting of one or more of the national societies represented on this board. Advance announcements of examination dates and place will be made in medical journals throughout the country. (Schedule for Chicago, May 10 to 17, 1954.)

Examination consists of:

1. Oral examination before two to four examiners.

An endeavor is made to adapt the details of the oral examination to each candidate's experience and practice. The examination is particularly directed to ascertain his familiarity with recent obstetrical and gynecological literature, the related basic sciences, the breadth of his clinical experience, and his general qualifications as a specialist in obstetrics and gynecology.

2. Pathology examination.

The candidate is expected to identify and to discuss several obstetrical and gynecological pathologic specimens and sections.

Examiners report orally on each candidate to the assembled board, after which the results of their investigations are considered jointly by the entire board and associate examiners. After a general consideration of the details of the candidate's oral and pathology examinations, including a review of his capability and general adaptability, the candidate is passed or failed by the entire board of directors.

The final action of the board is based on the candidate's ethical and professional record, training and attainments, as well as on the results of his formal examination.

When a candidate fails in Part II of the examination, he is not required to repeat Part I but is required to repeat Part II only. One reexamination may be taken within three years of the original examination and first failure without formal reapplication papers. Request for reopening of the candidate's original application must be filed with a reexamination fee of $25 (See Application and Fees). Application for reexamination in Part II must be made by the candidate prior to Feb. 1 of any year. Data regarding additional training or experience and medical school or hospital appointments acquired in the interim must be cited in the letter and verified on a Supplemental Training Form obtained from the office of the secretary of the board.

The reexamination fee will be effective only on original applications filed subsequent to the date of this announcement, namely, June 1, 1949.

The candidate may be allowed to reappear at the examination following the one failed by him. The board may, at its discretion, deny the candidate the privilege of reexamination. Requests for admission to reexamination must be accompanied by statements covering additional training, or opportunities for supervised clinical experience since the previous failure to justify such readmission.

Failure to exercise the privilege of reexamination within three years entails the filing of a new application with the usual application and examination fees.

After two failures in either Part I or Part II on the first application, the candidate may reapply with a new application and reapplication fee of $25 and reexamination fee of $100 and be readmitted to examinations once only. Exceptions to this ruling can be made only by action of the entire board of directors in annual session, usually to be based on evidence of additional training and experience sufficient to warrant such action.

CASE REPORTS

Case reports are to be sent by the candidate to the secretary as soon as possible after receiving notification of eligibility, and not later than the date of the Part I written examination.

In the case of candidates applying for unilateral certification, case reports must pertain to the branch for which application is made.

Twenty-five important obstetrical and gynecological case reports, in condensed form, are required. Five cases may concern major illnesses, not necessarily operative. These reports must include a variety of material rather than a number of reports of one type. Case reports from one residency's service shall not be more than five in number.

Men holding full time medical school faculty appointments may submit half their case records from this full time, nonprivate practice, but post-training service. (See Requirements.)

The candidate should prepare and maintain in his possession a carbon copy of his case records in case of possible loss in shipping.

These reports are not to be copies verbatim from hospital records, but should be in condensed form.

Evidence of adequate follow-up examination pertinent to each individual case must be submitted.

The candidate should submit *separate verified index lists, in duplicate* for each individual hospital at which operations were performed. All of these must be formally signed by the responsible hospital official (preferably the hospital superintendent), attesting in each instance that the candidate was the operator.

In the upper left-hand corner of each index sheet there should appear:

Candidate's Name; and Name and Address of Hospital.

The data for each patient should be tabulated horizontally, reading thus:

1. Sequence number of case report (1 to 25).

2. Whether patient was from the candidate's residency service or his own private or ward practice, as follows: "Res. Serv." or "Own Practice." *All records failing to have this information will not be considered acceptable.*

3. Patient's name or identifying initials, age, parity.

4. Date of patient's admission and hospital admission number.

5. Date of patient's operation.

6. Date of patient's discharge.
7. Dates of follow-up examinations.

At the foot of each index sheet should be placed the attested statement of the hospital official, referred to above. This statement should read as follows:

This is to certify that the above listed case reports have been verified by me from the records of this Hospital and these patients operated upon in this institution by Dr.——————; that the admission number and dates specified are correct. This is further to certify that the reports given the following sequence numbers (———— to ———— inclusive) were from the residency service of the aforementioned physician and the reports given the following sequence numbers (——— to ——— inclusive) were from his own practice (ward or private) in this Hospital and that in all instances he was the chief operator.

.... Signature

.... Official Title

Date..................................

Each case report should be typewritten on standard size paper, 8½ x 11 inches, and those reports then assembled in sequence. Covers should not be used for separate reports, as this increases their bulk unduly. Reports should be bound loosely together in a light outside cover not larger than 10 x 12 inches, so that they may be opened and held like a book. The following items should be observed:

I. Each case report should be headed by identifying information corresponding with that of the index lists, including sequence number, designation as a "Residency" or "Own Practice" case, and so on.

II. The report of the case should begin with:

1. Preoperative diagnosis.
2. Postoperative diagnosis (based on findings).

III. The report should be in condensed form, not reported in detail. Follow-up findings of not less than six (6) months are essential. Omissions of follow-up examinations must be explained and justified.

IV. Obstetrical reports which do not include essential pelvic measurements and note of methods used, will be considered incomplete.

V. Critical summary or analysis of each report with critical deductions derived from correctness or incorrectness of candidate's procedures and from final results must be a final part of each report. Lacking such summary, *reports will be considered incomplete and will not be graded.*

GRADUATE TRAINING RESIDENCIES

This board, through the Council on Medical Education and Hospitals of the American Medical Association, has approved institutions providing acceptable residencies in obstetrics and gynecology.

The American Board of Obstetrics and Gynecology has established the following requirements for its approval of a residency in a hospital department or service:

1. It is most desirable that the Chief of Service of the Department be certified by the board, in the interests of the proper teaching of the specialty of obstetrics and gynecology. In lieu of such certification the board will approve of individuals of recognized high professional standing in the specialty. At least one additional senior member of the staff should be similarly qualified.

2. Exceptions to the foregoing, in respect to the certified status of Chiefs of Service and others as outlined above, can be made by assent of the Committee on Residency Training for adequate and justifiable reasons. As examples of the latter, the degree of F.A.C.S. in obstetrics-gynecology may be accepted in lieu of one of the two required certifications if the general reputation of the person concerned is known to the Committee as national or sectional in scope, or a professorial rank without certification might be acceptable.

3. In instances where the services of obstetrics-gynecology not combined but are separate in any given hospital, the Chief of each such service seeking approval and at least one of his subordinates must be certified or otherwise qualified as outlined above.

If obstetrics and gynecology are not combined in one department, approval can be granted only if arrangements are made for some degree of rotation of residents between both services, provided both services are separately approved.

4. If gynecology is classified in the given hospital as a subdivision or subservice of general surgery, approval cannot be granted for residency training in gynecology. Exceptions have been made if the subdivision of gynecology is headed and staffed by a chief and at least one other certified by this board or otherwise qualified as specialists in obstetrics-gynecology, as specified above, thus insuring an acceptable educational program in obstetrics-gynecology.

5. Effective July 1, 1948, "temporary approvals pending survey" were discontinued. It is expected that all presently approved hospitals will soon be initially surveyed, if holding temporary approval, or resurveyed and redesignated if holding unconditional approval.

6. Departments holding official approvals for residency training are cautioned that their totals of residents appointed must be kept to the number specified in the A. M. A.—American Board approval notification. Dilution of training facilities by unauthorized appointment of residents in excess of these numbers may be cause for reinspection and changes in approval status of such hospitals and their special services.

7. For further details of requirements and qualifications for approval for residency training, hospital officials should refer to the latest special issues of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION as they appear during each year, dealing with these subjects, *or should apply to the Council on Medical Education and Hospitals of the American Medical Association for bulletins entitled Essentials of Approved Residencies and Fellowships.*

8. Application for residency approval must be made in triplicate on special forms provided for this purpose. These forms may be obtained from the Secretary of the Council on Medical Education and Hospitals of the American Medical Association. All statements amplifying an application should also be made in triplicate. The hospital should keep a duplicate of all papers.

9. The formal application, with all papers, for residency training approval should be submitted primarily to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois. Action is taken jointly by the Council and this Board after survey by the Council.

10. Approvals are granted according to adequacy of the training program and teaching facilities of various institutions on the following several bases: (a) one-year approval in obstetrics and gynecology (combined) or one-year approval in obstetrics and/or in gynecology (separate), correlated basic science instruction being an essential part of the first year; (b) two-year approval in obstetrics and gynecology (combined) or two-year approval in obstetrics and/or in gynecology (separate), provided there is opportunity in the latter instances for some degree of rotation between the two services as well as laboratory instruction in basic sciences; (c) three-year approval in obstetrics and gynecology (combined) or in obstetrics or in gynecology, provided there is opportunity for one to one and one-half years' service in the branch of the specialty opposite to that in which the candidate holds appointment, as well as laboratory instruction in the basic sciences of both branches.

Three (3) years' approval is available to institutions holding active medical school teaching affiliations. Other institutions may acquire three (3) years' approval if their educational programs and teaching facilities are adequate for such approval. Probably the most desirable type of approval, from the hospital's standpoint, is that of two (2) years in obstetrics and gynecology, because of the greater flexibility regarding appointments. These two (2) years may be the first two (2) following a trainee's internship or they may be the last two (2) of his formal training following an internship plus one (1) year of acceptable training in the specialty. A service with two-year approval may also, if it desires, appoint a man for only one (1) year, as for example, if he has already had two (2) years of approved training.

Many institutions with three-year approval appoint a group of men for the first year, promoting only part and releasing some of them at the end of this time. Other institutions are accredited for only one (1) year and both will from year to year provide partly trained men for the two-year institutions, which may thus complete a candidate's required training.

Some institutions may be granted one-year approval either because of limited facilities or, in certain instances, because of the preference of the institution which may require that candidates for such positions must show evidence of having completed two (2) years of satisfactory training.

No stipulation has been made that an institution holding only one-year training approval must provide this as the first year of a candidate's formal training. It may be his second or even his third year, responsibilities being graded accordingly, but if it is his first year laboratory basic science instruction is an essential part.

On the other hand, candidates may be promoted from year to year in one place for their entire service of three (3) years if this institution is so approved and listed.

Exchange residencies within the specialty between approved institutions are acceptable and to be encouraged. Many authorities believe that training in more than one institution is broadening to the candidate. "Farming out" to unapproved institutions or services is not acceptable unless the work of such services is directly and carefully supervised by the Chiefs of the service in the approved hospital under which the man is actively appointed and working. This should be attested by such Chiefs.

Exchange residencies into other specialties cannot be permitted to subtract from the minimal required three (3) years of training divided between obstetrics-gynecology.

As noted elsewhere, two (2) years of post-training practice limited to the specialty is necessary before a candidate becomes eligible for certification.

This board has no objection to residency services being arranged by hospitals for periods longer than three (3) years, unless this dilutes the candidate's clinical training opportunities too much during the first three (3) years. However, the board does not accept a fourth year, or more, of residency training as a substitute for any part of the required two (2) years of post-training practice. The importance of post-training practice in the specialty is emphasized as an opportunity for maturing of the candidate and for colleague appraisal of a man's ability when working on his own responsibility in his chosen community.

Exception to this ruling may be made for men advancing from their training into and planning to remain in full-time teaching positions. These men then must complete at least two (2) years in such positions. Consequently the only institutions in which men may work as fourth and fifth-year residents and obtain credit for this time as "post-training practice" are those directly affiliated with approved schools of medicine as teaching hospitals for undergraduate instruction. These "full-time" men must hold faculty appointments, must have teaching duties with undergraduate students, must be given independent authority more than that of residents, and must make a declaration of intention to remain in full-time teaching work.

11. Lists of officially approved institutions for formal residency training appear regularly in certain issues of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. Detailed information about any of these can be obtained from the Association.

12. Any physician formally obligating himself to serve a residency in a Council on Medical Education and Hospitals of the American Medical Association-American Board of Obstetrics and Gynecology approved hospital and thereby eliminating other possible candidates from the position, who breaks his contract without justifiable cause, either before beginning his service or during his period of service, except by mutual consent and agreement between the candidate and the hospital, may be barred from the examinations for certification at the discretion of the board.

13. It should be recalled by all concerned that credits for graduate training may be obtainable in certain instances for residency or assistantship service in hospitals not officially approved for residency training. Each such case must be individually considered, and credits will be largely dependent on the teaching qualifications of those in charge of the service, and the clinical facilities of the hospital in question.

PRECEPTORSHIP TRAINING

After July 1, 1955, the board will no longer accept training solely by preceptorship in fulfillment of educational requirements for admission to examination. To be eligible for preceptorship thereafter the candidate must have had a minimum of one year formal residency training in an institution approved by the Board for Residency Training in obstetrics and/or gynecology.

After the above date candidates who apply for preceptorship training must notify the secretary of the board of such intent and give the name of the proposed preceptor. He must also request the preceptor immediately to notify the secretary of the board in writing, giving hospital connections, available clinical material, opportunity for basic study, and the plan of the proposed teaching program. As has long been true of residency training programs such as preceptorship, arrangements will be reviewed by the residency training committee of the board in advance for approval or disapproval. If the program is approved, the official preceptorship training form will be forwarded to the preceptor.

The preceptor must supervise closely the candidate's work and keep an informative record of the candidate's performance. The preceptor and the preceptee shall report in writing to the Secretary of the Board at the end of each six months of preceptorship, outlining the progress of the training program. This information will be placed in the candidate's application for admission to examination in order that it may be evaluated by the credentials committee.

As a general rule each year of preceptor training will receive a six months' credit toward the total of three years of training necessary for admission to examination. As is the case with candidates whose training has been entirely by formal residency, each application will be evaluated finally by the credentials committee.

An acceptable preceptor preferably shall be one certified by the American Board of Obstetrics and Gynecology and must have been certified for a minimum of five years. Fellowship in the American College of Surgeons or long experience and established reputation as an obstetrician-gynecologist without either of the above qualifications may qualify the preceptor.

Preceptor and preceptee must work in a hospital approved by the Joint Commission on Accreditation of Hospitals.

The pretraining practice requirements cannot be carried on concurrently with preceptorship training.

CERTIFICATION

Each certificate granted or issued does not itself confer or purport to confer on any person any degree or legal qualifications, privileges or license to practice obstetrics or gynecology, nor does the board intend in any way to interfere with or limit the professional activities of any duly licensed physician. Its chief aim is to standardize qualification for specialists in obstetrics and gynecology, and to certify as specialists those who voluntarily appear before the board for such recognition and certification, according to its regulations and requirements.

The board does not subscribe to any hospital rule that certification is to be required for medical appointments especially in ranks lower than chief or senior staff of hospitals, or associate professorship in schools of medicine, for the obvious reason that such appointments constitute desirable specialist training.

Even though certification or its full equivalent may be considered a desirable requisite to appointment in key positions, as on the senior or chief staff, particularly of hospitals expecting to conduct approved services for training of residents, it was never intended by this board that certification should be required by any hospital as a prerequisite to appointment, especially in such lesser positions.

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Address all communications to the American Board of Ophthalmology, Cape Cottage, Maine.

NO DEGREES OR LEGAL RESTRICTIONS

Each certificate granted or issued does not of itself confer or purport to confer on any person any degree or legal qualifications, privileges or license to practice ophthalmology, nor does the board intend in any way to interfere with or limit the professional activities of any duly licensed physician. Its chief aim is to elevate the standards of qualification for specialists in ophthalmology and to certify as specialists doctors of medicine who appear before the board for such recognition and certification, according to its requirements and regulations.

REQUIREMENTS

All candidates must comply with current board regulations regardless of time of filing application.

The secretary is not permitted to make decisions as to requirements. These rulings are made only by the Committee on Credentials after reviewing the candidate's formal application.

PREREQUISITES

1. High ethical and professional standing.
2. Full citizenship in the country where the candidate practices. (Limited to countries of North and South America, their possessions and territories and the Philippine Republic.)
3. A degree from a medical school of high standing, satisfactory to the board and approved by the Council on Medical Education and Hospitals of the American Medical Association. An applicant whose training has been received outside of the United States and Canada must present credentials satisfactory to the board and is required to have the certificate of the National Board of Medical Examiners if he has been in practice less than ten years.
4. Completion of an internship of not less than one year in a hospital approved by the same Council.
5. Completion, by the time of the written Qualifying Test, of not less than thirty-six months (a total of sixty months is required of candidates practicing both ophthalmology and otolaryngology) of combined study, training and practice of ophthalmology in approved medical schools, hospitals, clinics, dispensaries, laboratories, preceptorships and private practice.

GENERAL REQUIREMENTS FOR ALL CANDIDATES

1. Application forms must be filled out completely and accurately. Letters of endorsement, together with any other required credentials, must be sent to the secretary's office before the deadline date.
2. Fee of $100 remitted with application.
3. A list of papers or books published.
4. Written qualifying test.
5. Practical examination.
6. Special review of ophthalmic surgery.
7. Membership in the American Medical Association, or such other societies as are recognized for the purpose by the Council on Medical Education and Hospitals of the American Medical Association.

FEES

For written test and original examination, $100 (as mentioned above).

Repeating Written Qualifying Test, $65.

Repeating Practical Examination, $65.

Single conditions, Written or Practical, $25.

Two or more conditions, $35.

Written qualifying test must be taken within three years of date of application. Thereafter new application and fee are required.

The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners serve without compensation other than actual expenses.

SPECIAL TRAINING

This shall include:

1. Graduate study of the basic medical sciences which are fundamental to the intelligent practice of ophthalmology, particularly: anatomy, histology, embryology, optics, physiologic optics, visual physiology and psychology, pathology, bacteriology, pharmacology, disorders of ocular motility and binocular vision, perimetry, and in the skilful adjustment and use of instruments such as the ophthalmoscope, retinoscope, slit lamp and microscope. Mere factual knowledge is not sufficient; the candidate must have had training in the application of these subjects and in their use in clinical ophthalmology, especially in refraction.
2. Active clinical experience in approved hospitals, clinics, dispensaries and private practice. Library and laboratory facilities should be utilized for intensive study of cases.

The subject matter to be covered under 1 and 2 is outlined in the syllabus prepared by the board.

These requirements may be met in various ways:

BASIC STUDIES

Anatomy
Embryology and developmental abnormalities
Biochemistry
Pathology
Bacteriology and immunology
Optics and physiologic optics
Ocular physiology
Medical Ophthalmology
Therapeutics and pharmacology
Neuro-ophthalmology

These may be covered by:

A. *Graduate Study.*—By a curricular course in the basic sciences related to ophthalmology in an approved graduate medical school.

B. *Postgraduate Study.*—By courses in individual basic sciences related to ophthalmology as given at various approved institutions. The Home Study Course of the American Academy of Ophthalmology and Otolaryngology is recommended.

C. *Residency.*—By advanced study of these subjects during a residency and by correlation of the principles involved with clinical problems.

D. *Research, Fundamental and Clinical.*—By the detailed study, under supervision or as assistant to an experienced research worker, of some problem or topic which brings the basic sciences into direct relation with the concrete clinical problem.

CLINICAL EXPERIENCE

A. By residency in an approved hospital. The most desirable of these residencies have regular lectures covering the entire field of clinical ophthalmology and of the basic subjects as applied in clinical practice. Many of these have seminars at which residents report cases which they have carefully worked up. These are discussed by the other residents and by the staff and the method of presentation as well as the subject matter critically considered.

B. By residencies in hospitals where regular instruction by lectures and quizzes and seminars is not available. The syllabus issued by the board will guide the resident in his selection of topics to be studied.

C. By fellowships in ophthalmology.

D. By preceptorship with a well trained and critical ophthalmologist.

E. After completing a residency it is of great advantage to secure a position in a clinic as fellow or assistant. This may require only part time work, but due credit will be given. Its value to the student depends on how much study he puts into it and on how competent his seniors are.

F. Research under competent critical and sympathetic supervision will give first hand insight into (1) the methods whereby old knowledge was and new knowledge is acquired and (2) the pitfalls which accompany attempts to enlarge the sphere of knowledge. Only in this way can the candidate evaluate basic facts in the intelligent critical way which is expected of the specialist in practice.

G. The candidate who cannot secure the type of residency he desires should not despair, for his progress depends far more on how he uses his opportunities than on the opportunities themselves.

WRITTEN QUALIFYING TEST

Before being accepted for examination, candidates are given a written test to ascertain their qualifications. The questions may cover any part of ophthalmology and are especially devoted to the basic studies as listed above. The written test will be given in several principal cities at the same time. Choice of cities is determined largely by the geographical distribution of candidates. Candidates found acceptable will be notified to appear for a subsequent practical and clinical examination in ophthalmology.

EXAMINATIONS

Examinations usually are held annually at or near the time and place of the meeting of the American Medical Association; also at other times and places at the discretion of the board, depending on the number of applications from any region.

The board reserves the right to limit the number of candidates to be admitted to any one examination.

Candidates must be examined in all subjects listed in the sections titled Basic Studies and Practical and Clinical Examination. The time spent in preparation will count less than the knowledge and experience acquired as shown on examination.

PRACTICAL AND CLINICAL EXAMINATION

The subjects of the practical examination are as follows: (1) External Diseases, (2) Ophthalmoscopy, (3) Histopathology, (4) Refraction, (5) Motility, (6) Ophthalmic Surgery, and (7) Perimetry.

1. *External Diseases of the Eye and Adnexa.*—Various methods of examination, diagnoses and treatment.

2. *Ophthalmoscopy.*—Patients will be examined by the candidate and the findings described or drawn. A candidate is required to bring his own ophthalmoscope.

3. *Pathology.*—The candidate will demonstrate familiarity with general clinical pathology as well as the etiology, pathology and bacteriology of diseases of the eye. He will be asked to examine microscopic slides and to recognize normal and pathologic histology of the eye.

4. *Refraction.*—A candidate will examine patients and show mastery of various methods, and of the principles of refraction and of retinoscopy. He should bring his own retinoscope.

5. *Motility.*—The candidate will demonstrate on patients his familiarity with routine methods of examination and diagnosis.

6. *Ophthalmic Surgery.*—Examination of surgical patients and discussion on principles of ophthalmic surgery.

7. *Perimetry.*—The candidate will be given an opportunity to examine patients by use of the arc perimeter, the tangent screen and the stereocampimeter. He may also be required to interpret charted fields.

SPECIAL REVIEW OF SURGICAL CASES

The board now requires of all candidates a list of ophthalmic operations performed within two years prior to examination. This list is to be presented with application.

The operations should be listed in groups of each type of surgery. The numbers of operations in each group must be totalled and the total number of all operations shown. This list must contain the following data:

1. Date.

2. Condition or conditions for which operation was performed. Complications during hospitalization.

3. Name and character of operation.

4. Identification by hospital or clinic number, or the name of a consultant or conferee who was present at the time of operation.

Circumstances which prevent any candidate from fulfilling this requirement should be fully explained, with detailed statement of candidate's surgical experience.

CERTIFICATION

The decision of the board is final as to the candidate's passing, failure or partial failure. The final action of the board is based on the candidate's ethical and professional record, training and attainments, as well as on the results of his formal examinations.

REEXAMINATION

Candidates may be reexamined as often as they desire on satisfactory evidence of adequate additional preparation and payment of reexamination fee. A minimum of one year must elapse between examinations when a candidate is conditioned in one or more subjects. A minimum of two years additional preparation is required of candidates who fail in all subjects. The board may, at its discretion, deny the candidate the privilege of reexamination.

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RULES AND PROCEDURES

1. General Eligibility Requirements

1. Satisfactory moral and ethical standing in the profession.

2. Graduation from a medical school of the United States or Canada, recognized at the time of graduation by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a foreign school considered satisfactory by the aforementioned Council.

3. Completion of an internship of not less than one year in a hospital approved at that time by the Council on Medical Education and Hospitals of the American Medical Association or, if trained in foreign countries, in institutions considered satisfactory by the American Board of Orthopaedic Surgery.

4. Starting in 1952 and continuing subsequently, applicants taking Part I examinations for the first time must have completed not less than one year of resident training in general surgery in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association, or present evidence of comparable training in general surgery considered satisfactory by the American Board of Orthopaedic Surgery. The minimum of one year of training in general surgery is in addition to the minimum of one year of internship.

5. Completion of formal requirements for Part I or Part II examinations. These formal requirements can be satisfied only by training in one or two categories:

(*a*) resident orthopedic training
(*b*) preceptorship training

Applicants may no longer be admitted to examinations, or be certified, on the basis of extensive specialized practice and/or teaching appointments and/or many short unapproved courses.

6. Restriction of practice to orthopedic surgery.

II. REQUIREMENTS FOR PART I EXAMINATIONS

1. Completion of and compliance with aforementioned general eligibility requirements.

2. Citizenship in the United States or Canada, or possession of citizenship papers showing intent to become a full citizen.

3. Satisfactory completion of a minimum of one year of approved training in orthopedic surgery under a program of resident orthopedic training, or completion of a minimum of five years of orthopedic training under a preceptorship program.

Starting in 1952 and continuing subsequently, in addition to the aforementioned requirements, applicants taking Part I examinations for the first time will be required to have satisfactorily completed a minimum of two years of approved training in orthopedic surgery instead of one year previously required. Applicants training on preceptorship programs will still be required to have completed a minimum of five years of orthopedic training.

4. Evidence of competence in training.

5. Approval for examination by the Committee on Eligibility of The American Board of Orthopaedic Surgery.

III. REQUIREMENTS FOR PART II EXAMINATIONS

1. Successful completion of Part I examinations.

2. Full citizenship in the United States or Canada.

3. License to practice in the United States or Canada.

4. Membership in the American or Canadian Medical Association.

5. Satisfactory completion of a minimum of three years of approved resident training in orthopedic surgery, plus a minimum of two subsequent years of practice period for applicants trained under resident orthopedic training programs.

6. Satisfactory completion of a minimum of five years of practice period for applicants trained under preceptorship programs.

7. Evidence of competence in practice.

8. Approval for examination by the Committee on Eligibility of the American Board of Orthopaedic Surgery.

IV. APPLICATION AND EXAMINATION FEE SCHEDULE

1. Application for Part I, fee $15, not returnable.

2. Examination, Part I, fee $35, payable only if approved for examination. Approved candidates failing to appear for scheduled examinations forfeit fees.

3. Application for Part II, fee $15, not returnable.

4. Examination, Part II, fee $50, payable only if approved for examination. Approved candidates failing to appear for scheduled examinations forfeit fees.

5. Reexamination, Part I, fee $35; for Part II, fee $50. No application fee is required for reexamination.

V. APPLICATIONS

1. Applications for Part I examinations must be received in the office of the secretary of the board before November 30 of the year preceding the examinations.

2. Applications for Part II examinations must be received in the office of the secretary of the board before August 15 of the year preceding the examinations.

3. Notices of acceptance for admission to the Part I examinations are mailed to eligible candidates during the month of February in the year of the examinations.

4. Notices of acceptance for admission to Part II examinations are mailed to eligible candidates during the month of November in the year preceding the examinations.

5. Questions of eligibility for examinations are decided by the Committee on Eligibility of the board. This committee meets twice yearly. The secretary is not empowered to rule on questions of eligibility.

VI. EXAMINATIONS

1. Part I examinations are held once yearly, usually in April or May, in various centers in the United States.

2. Part II examinations are held once yearly, usually in one center, immediately preceding the meeting of The American Academy of Orthopaedic Surgeons.

VII. CERTIFICATION

1. Applicants who successfully pass Part I examinations will receive no certificate but will be notified by letter by the secretary.

2. Applicants who successfully pass Part II examinations receive a Certificate of the Board which states that they have been found qualified to practice the specialty of orthopedic surgery in those fields in which they have been trained and examined.

3. Candidates obtaining certification without training and examination in children's orthopedic surgery may subsequently add certification in children's orthopedic surgery by completing a minimum of one year of approved resident orthopedic training in children's orthopedic surgery and successfully passing examination in that field. A practice period of one year is required following completion of resident training, prior to examination for additional certification.

VIII. APPROVED RESIDENCIES

1. In the United States, resident training must be taken in institutions approved for resident training in orthopedic surgery by the Council on Medical Education and Hospitals of the American Medical Association. All approved institutions are listed at frequent intervals in the Internship and Residency number of THE JOURNAL. Lists may be obtained from the American Medical Association and are not obtainable from the board.

2. The integral parts of approved residencies are designated in lists by the following symbols: A—Adult Orthopedic Surgery; C—Children's Orthopedic Surgery; F—Fracture Surgery; and S—Basic Science training. Approved lengths of training in institutions is also designated.

3. Candidates electing an additional year of training in adult orthopedic surgery and fracture surgery in lieu of a year in children's orthopedic surgery may satisfy requirements by continuing their training beyond the designated approved length of time in institutions approved for adult orthopedic surgery or adult orthopedic surgery and fractures.

4. Credit for resident training is not retroactive. Candidates must receive resident training in institutions during periods that such institutions are on the approved list. If candidates are in training at institutions at the time that such institutions become approved, resident training credit may be granted from the start of the training period provided that the program is judged to have been satisfactory.

5. Candidates in resident training, or possessing signed contracts for future resident training in institutions which become disapproved, either in whole or part, receive resident training credit for the entire period during which their contracts are in force.

6. The term "fellow" is considered synonymous with "resident" when the position occupied and the work performed is equal in all functions. Fellowships in institutions having residents, in which training and responsibilities are not equal, are not credited as resident training.

7. Institutions approved for resident training in orthopedic surgery by the Council on Medical Education and Hospitals of the American Medical Association may, with prior acceptance by the American Board of Orthopaedic Surgery and notification

to the Council, utilize the training facilities of institutions not individually approved for resident training by the aforementioned Council, provided that:

(*a*) The training supplements services in the same categories in which the institution responsible for training is approved by the Council.

(*b*) The resident spends at least half of the minimum required time in each category of training in institutions approved by the Council.

8. Foreign residencies must satisfy the American Board of Orthopaedic Surgery.

9. Application for approval of the training facilities of any institution must be made to the Council on Medical Education and Hospitals of the American Medical Association, and inspection of such facilities is made by representatives of the Council. Final approval is a joint function of the Council and the American Board of Orthopaedic Surgery.

IX. REQUIREMENT OF RESIDENT ORTHOPEDIC TRAINING

1. Institutions approved for full three year programs including all parts of the training requirements may integrate all parts so that they are given concurrently.

2. Institutions now approved for less than three years of orthopedic resident training should arrange with other approved institutions to provide complete three year programs for all residents. It is planned that such desirable complete programs, with their participating institutions, will be listed separately.

3. The minimum requirements of resident orthopedic training are as follows:

(*a*) One year of training in adult orthopedic surgery.

(*b*) Six months of training in the basic sciences.

(*c*) Six months of training in fracture surgery.

(*d*) One year of training in children's orthopedic surgery or, if elected, an additional year of training in adult orthopedic surgery and fracture training in place of training in children's orthopedic surgery.

4. Candidates who elect an additional year of training in adult orthopedic and fracture surgery instead of a year in children's orthopedic surgery may satisfy the requirements by taking the additional year of training in adult orthopedic surgery or six months of adult orthopedic surgery and six months of fracture surgery, but may not take the entire year of training in fracture surgery.

5. Training in adult and children's orthopedic surgery must include observation and first hand experience in diagnosis, treatment, operative and postoperative care of orthopedic problems.

6. Training in fracture surgery must include observation and first hand experience in diagnosis, treatment, operative and postoperative care of recent and old fractures.

7. Training in the basic sciences must instill a sound knowledge of anatomy, pathology, physiology, bacteriology and biochemistry as these basic sciences apply to orthopedic surgery.

8. Candidates may complete the training requirements by training in several approved institutions provided that all the aforementioned minimum requirements are satisfied on approved services.

9. No training period of less than six consecutive months in one institution may be credited toward resident training requirements, except a few short courses on the board's approved list and recognized supplementary services of approved institutions.

10. Candidates in resident training may not engage in private practice.

11. Candidates in resident orthopedic training must receive their training in institutions and may not receive credit for time spent assisting in private office practice, which is considered as preceptorship training.

12. Candidates trained on accelerated programs during the war years are credited with one year of training for each nine months' residency on established accelerated programs.

X. REQUIREMENTS OF PRECEPTORSHIP TRAINING

1. The preceptor must possess certification by the American Board of Orthopaedic Surgery.

2. The practice of the preceptor must be extensive enough to give the candidate experience in all phases of orthopedic practice.

3. The preceptor must devote special periods of time each week, outside of the routine hours employed in hospitals and office practice, to assist the candidate with organized courses of study similar to those received during resident training.

4. If facilities and instruction in the related basic sciences are not available, the candidate must spend a minimum of six months as a student in an institution approved for basic science training in orthopedic surgery.

5. The candidate must train as a full time assistant to the preceptor and may not maintain a separate office or engage in individual practice.

6. The minimum training period in orthopedic surgery under the preceptorship program is five years, after which time the candidate may file application for Part I examinations.

7. The minimum practice period required for candidates trained under the preceptorship program is five years, after which time the candidate may file application for Part II examinations. This makes a minimum total of 10 years from the start of orthopedic training to eligibility for Part II examinations.

8. The practice period may be satisfied in individual private practice or in assistantship or partnership as desired by the candidate.

9. Candidates who combine preceptorship training with approved resident training receive credit for the preceptorship portion of their training only if it totals a minimum of two years. Two years of preceptorship training are credited as the equivalent of one year of resident training. The practice period requirement is likewise evaluated so that three years of practice are required if the candidate submits two years of preceptorship and two years of resident training, and four years of practice are required if four years of preceptorship and one year of resident training are submitted.

XI. SEQUENCE OF EXAMINATIONS AND PRACTICE REQUIREMENTS

1. No person may take Part II examinations until after successful completion of Part I examinations.

2. Successful completion of Part I examinations in no way obligates the board to declare a candidate eligible for Part II examinations.

3. Regardless of how extensive or prolonged a practice a candidate may have had prior to completing the training requirements, such time may not be credited toward practice requirements. All practice requirements must be satisfied subsequent to completion of training requirements.

4. Candidates may not be admitted to examinations on the basis of prolonged practice but must qualify on the basis of formal training in one of the categories previously detailed.

XII. PRACTICE REQUIREMENTS

1. Candidates must maintain high ethical and professional standards.

2. Candidates must strive to increase their scientific knowledge.

3. Candidates must limit their practice to orthopedic surgery.

4. Candidates who have had no approved training in children's orthopedic surgery must confine their practice to fracture and adult orthopedic surgery.

5. Candidates trained in resident orthopedic training are required to complete a minimum of two years of orthopedic practice subsequent to the completion of their formal training before becoming eligible for Part II examinations.

6. Candidates in private or institutional practice must spend a minimum of 14 months in one locality immediately prior to application in order that practice may be properly evaluated.

7. Candidates employed full time in institutions may satisfy practice requirements by serving a minimum of two years, but minimum requirements may not be satisfied by mixing full-time institutional work with preceding or subsequent time in private practice.

8. Candidates trained by preceptorship are required to complete a minimum of five years of orthopedic practice before becoming eligible for Part II examinations. The practice period may be independent of the preceptor.

XIII. Method of Examination

1. Part I examinations consist of a written examination and oral examinations. Material covered includes fundamental surgical principles, elementary fracture and orthopedic procedures, history-taking and physical examinations as well as those parts of anatomy, pathology, physiology and biochemistry related to orthopedic surgery. The oral examinations consist of five parts: (*a*) anatomy, (*b*) pathology, (*c*) physiology and biochemistry, (*d*) surgery and (*e*) fractures and orthopedic surgery.

2. Part II examinations consist of a written examination and oral examinations. Material covered includes advanced work in all phases of orthopedic surgery. The oral examinations consist of five parts: (*a*) anatomy, (*b*) pathology, (*c*) children's orthopedic surgery, (*d*) fractures and (*e*) adult orthopedic surgery.

3. Candidates who have not had approved training in children's orthopedic surgery will not be examined in that branch of orthopedic surgery.

4. Candidates are notified by letter as to whether they passed or failed in the examinations. No information regarding results is available until such letters are mailed.

5. Results of integral parts of examinations are not available to either candidates or diplomates of the board.

6. Candidates who have passed Part I examinations are required to take Part II examinations within a 10 year subsequent period. If there is a lapse of more than 10 years, candidates must repeat Part I examinations and must then become eligible by the requirements then in force.

XIV. Reexaminations

1. Applicants who fail to pass Part I or Part II examinations may be reexamined a second or third time in each Part, but must pay the prescribed examination fee each time of reexamination.

2. Applicants who fail to appear for second and, if necessary, third reexaminations within three years after first failure must submit new applications with the appropriate fees.

3. After three successive failures in Part I or Part II examinations, applicants must present evidence of additional orthopedic training satisfactory to the board before submitting new applications.

XV. Military Service

1. Medical officers who have elected service in the military forces as their life careers compete for certification on the same basis as do doctors in civilian practice.

2. Doctors who served for a minimum of one year in the military forces during the war years, between Jan. 1, 1941, and July 1, 1946, are granted a bonus of one year of practice credit, provided that the same time is not used for resident training credit.

3. Applicants who served in military hospitals whose service is judged by the board to have been equal to that of approved resident orthopedic training, and who were on such service for a minimum of one year between Jan. 1, 1941, and July 1, 1946, may be granted credit for one year of resident orthopedic training, provided that the same time is not used for practice credit. Applicants requesting such credit must submit completed "Record of Professional Assignments" booklets with their applications.

4. No applicant may be granted more than one year of resident training credit and one year of practice credit for military service during the war years.

5. After July 1, 1946, credit for orthopedic training must have been or must be obtained by assignment as residents in military hospitals on the approved list for resident orthopedic training, the same as in civilian life.

6. Medical officers assigned to civilian institutions on the approved list for resident orthopedic training receive the same credit as do civilian candidates.

7. Medical officers who have elected service in the military forces as their life careers must satisfy the practice requirements by military assignments in which their duties are limited to the practice of orthopedic surgery.

XVI. Records of Surgical Cases and Inspections

1. Records of a specified number of consecutive surgical cases may be requested by the board in order to evaluate properly the work of an applicant.

2. A representative of the board may visit a community in order to evaluate properly the work of an applicant.

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GENERAL REQUIREMENTS

The following general qualifications of candidates for examination are required by the board:

1. A candidate must have been a citizen of the United States or the Dominion of Canada for three years or more.

(*a*) A candidate must have been a graduate five years or more of a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association.

(*b*) A candidate must be of known good moral character and be ethical in his professional relationships.

(*c*) A candidate trained in a foreign country must be able to give proof of medical and graduate training comparable to the requirements of the Board.

(*d*) A candidate from the United States or the Dominion of Canada must be a member of the American Medical Association or of the Canadian Medical Association respectively or other such medical societies of equal standing as are recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2. Candidates from foreign countries, who have received their training in otolaryngology in the United States are eligible for examination at the discretion of the board, providing they show proof that they are permanent residents and citizens of their respective foreign countries and provided they meet the general academic requirements of the board.

SPECIAL REQUIREMENTS

1. A candidate must have had a general internship, of at least one year, in a hospital approved by the Council on Medical Educations and Hospitals of the American Medical Association.

2. A candidate must be proficient in the applied basic sciences, fundamental to the intelligent practice of otolaryngology. These include anatomy of the ear, nose and throat, neck, chest, esophagus and nervous system, gross pathology and histopathology, bacteriology, physiology, didactic otolaryngology and the general fundamentals of surgery. (This requirement may be fulfilled in a residency or fellowship service or in an approved organized postgraduate course.)

3. In addition to the general internship, the required clinical training in otolaryngology may have been acquired in any of the following ways:

(*a*) A three years' approved residency or fellowship in otolaryngology approved by the Council on Medical Education and Hospitals of the American Medical Association.

(*b*) A four years' approved residency or fellowship in otolaryngology and ophthalmology approved by the Council on Medical Education and Hospitals of the American Medical Association, provided one half of the training has been in otolaryngology.

(*c*) A two years' approved residency or fellowship in otolaryngology or a three years' approved combined residency or fellowship in otolaryngology and ophthalmology, provided two years have been in otolaryngology and have been preceded by at least one year's residency training in surgery or medicine, or by an additional year in an approved internship.*

4. In exceptional circumstances certain candidates who cannot meet all of the above requirements may be accepted for examination, on recommendation of the Credentials Committee, substantiated by action of the board.

5. At least one year must be spent in private, group or institutional practice of otolaryngology following the period of special training. This requirement may be waived in cases of candidates of foreign countries who are permanent residents and citizens of their respective countries and who are returning there for the practice of otolaryngology.

6. A candidate may be qualified for examination, at the discretion of the American Board of Otolaryngology, if in addition to the General Requirements and Special Requirements, no. 1 and 2, he has limited his practice to otolaryngology for seven years in association with a hospital staff approved by the Council on Medical Education and Hospitals of the American Medical Association.

7. A limited certificate in one of the subspecialties of otolaryngology may be issued, at the discretion of the board, to an exceptionally well qualified individual, *in the special field in* which the certificate is desired.

All candidates must comply with current board regulations, regardless of the time of filing application.

APPLICATION AND FEES

1. Application must be made in duplicate on special blanks procured from the secretary. The completed application blanks must be returned to the secretary, together with the other required credentials, at least 120 days in advance of the examination at which the candidate desires to appear.

2. The applications must be accompanied by two small photographs of the candidate, together with *verification* of the period of enrolment from the institutions where training in otolaryngology was obtained, and the names of two or more otolaryngologists, preferably diplomates of the board, from the vicinity of the candidate's place of residency, to be used as references.

3. The fee for the examination is $150. Of this sum $75 must accompany the application, of which $50 shall be returned if candidate is not accepted for examination. No application will be acted on until the $75 application fee is received. The remaining $75 of the total examination fee of $150 must be paid to the secretary on notification that the candidate has been accepted. A reexamination fee of $75 is required of candidates conditioned in one or more subjects.

4. The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners serve without compensation other than actual expense.

5. The application remains valid for three years. An applicant must appear for examination within this time or forfeit the fee.

6. Candidates whose credentials have been found satisfactory and who meet the requirements of the board will be notified 90 days prior to the date of examination. The number of candidates who can be admitted to any one examination is limited. Due to a large number of applications on file, delay in assignment for examination may be inevitable. Appointments will be given in the order applications are accepted and on payment of the balance of the examination fee.

7. The board, acting as a committee of the whole, reserves the right to reject an applicant for any reason deemed advisable and without stating the same, and the action of the board shall be final.

EXAMINATION

Examinations will be held at such time and place as the judgment of the board may dictate. Advance notice of examinations will be given in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and the several special journals devoted to otolaryngology. Insofar as is possible these will be held biannually at, or near, the time and place of meeting of the American Medical Association, or special societies, and of the American Academy of Ophthalmology and Otolaryngology. The examinations cover from two to four days.

Scope.—This examination encompasses all phases of otolaryngology and peroral endoscopy, including maxillofacial surgery, and surgery of the neck, excluding the thyroid.

The type of examination is as follows:

1. Clinical, covering the actual handling of patients, including history taking, physical and functional examinations, the use of laboratory and x-ray findings and a discussion of *differential* diagnosis.

2. Didactic, oral examinations covering all phases of otolaryngology.

3. Gross and microscopic pathology.

4. A written examination may be included when the board deems this advisable.

REEXAMINATION

A candidate who is conditioned in examination may be admitted to a subsequent examination after one year and within the three year period dating from his application, on payment of an additional fee of $75 and 120 days' notice of intention to appear is required.

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* See Standards for Residencies in Otolaryngology published by the American Medical Association.

Candidates who have failed in the examination may be accepted for reexamination on recommendation of the Credentials Committee. *Satisfactory* evidence of further study and progress will be required. A new application must be filed. The fee for reexamination for such candidates is $150, $75 of which must accompany the application. The balance of the fee, $75, will be due on notification of acceptance.

CERTIFICATION

1. A certificate granted by the board does not of itself confer or purport to confer any degree or legal qualifications, privileges or license to practice otolaryngology, nor does the board intend or attempt in any way to interfere with or limit the professional rights and activities of any duly licensed physician. Its aim is to improve the standards of practice of otolaryngology and to certify as specialists those who voluntarily comply with its requirements and regulations.

2. The final action of the board is based on the candidate's ethical and professional record, training and attainments, as well as on the results of his formal examinations.

AMERICAN BOARD OF PATHOLOGY

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A. General Requirements

1. Satisfactory moral and ethical standing in the profession.

2. License to practice medicine or a certificate of the National Board of Medical Examiners.

3. Membership or associate membership in the American Medical Association or membership in a national society acceptable to the board by citizens of the United States. (At present, these include American Association of Pathologists and Bacteriologists, American Society of Clinical Pathologists, American Medical Association, or American Society for Experimental Pathology.) For citizens of other countries, membership in a national medical society of that country is required.

4. The applicant must devote his time primarily and principally to the practice of pathology.

B. Professional Education

1. Graduation from a medical school in the United States approved by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a medical school in other countries acceptable to the board.

C. Special Training and Experience

1. The board admits candidates to examinations who are otherwise eligible and who have had either of two following types of training and experience.

(*a*) After five years, if four of the five years have been in institutions approved by the Council on Medical Education and Hospitals of the American Medical Association or by the board; or

(*b*) After eleven years if none of the training and experience has been in institutions so approved.

2. The specific requirements for those acceptable after five years are as follows:

(*a*) Pathologic anatomy only.

(1) Four years of supervised study and training in an institution approved for residency training in pathologic anatomy by the Council on Medical Education and Hospitals of the American Medical Association or by the board. It is immaterial whether the candidate holds the title of resident or fellow or assistant. Candidates may, at their own election, substitute not to exceed twelve months of a straight or rotating clinical internship or a fellowship or instructorship in any of the preclinical departments of a university for one of the four years. In addition, time, not to exceed twelve months, spent in a department of pathology of an approved school of medicine after the completion of the second year of undergraduate study may be counted for full credit toward the four years.

(2) One additional year which may be a continuation of the preceding or may be independent practice of pathologic anatomy in a hospital approved by the American Medical Association or other institutions acceptable to the board.

(*b*) Clinical pathology only.

(1) Four years of supervised study and training in an institution approved for residency training in clinical pathology by the Council on Medical Education and Hospitals of the American Medical Association or by the board. It is immaterial whether the candidate holds the title of resident or fellow or assistant. Candidates may, at their own election, substitute not to exceed twelve months of a straight or rotating clinical internship or a fellowship or instructorship in any of the preclinical departments of a university, for one of the four years. Candidates holding also a master's or doctorate degree in a special field of clinical pathology (bacteriology, serology, chemistry, parasitology or hematology) may obtain time credit for not more than twelve to twenty-four months toward the four years for this work, regardless of whether it was taken before or after the medical degree. The evaluation of time credit will depend on how much of the broad field of clinical pathology was covered in the graduate work.

(2) One additional year which may be a continuation of the preceding or may be independent practice of clinical pathology in a hospital approved by the American Medical Association or other institutions acceptable to the board.

(*c*) Pathologic anatomy and clinical pathology.

(1) Four years of supervised study and training divided as follows:

(*a*) Two years of supervised study and training in pathologic anatomy as outlined in the preceding paragraph 2-(*a*)-(1).

(*b*) Two years of supervised study and training in clinical pathology as outlined in the preceding paragraph 2-(*b*)-(1). Candidates declared eligible before July 1, 1953, may at their own election substitute one year (twelve months) of a straight or rotating clinical internship for one year of this special training in clinical pathology. After July 1, 1953, all candidates applying for both pathologic anatomy and clinical pathology will be required to have two years of supervised training in clinical pathology.

(2) One additional year which may be a continuation of the preceding or may be independent practice of both pathologic anatomy and clinical pathology in a hospital approved by the American Medical Association or other institutions acceptable to the board. After July 1, 1953, candidates who elect to claim credit for one year for a clinical internship must take this fifth year as supervised study and training in clinical pathology in institutions approved for residency training in clinical pathology by the Council on Medical Education and Hospitals of the American Medical Association or by the board. Candidates declared eligible after July 1, 1953, who do not take a clinical internship, may, after four years of training as outlined in 2-(1)-(*a*) and (*b*), spend the fifth year in independent practice in an institution or laboratory acceptable to the board.

Note.—As outlined in the preceding paragraphs, the total time requirements of the board are unchanged after July 1, 1953, namely, five years of study or practice after graduation from medical school, with exceptions noted in sections 2-(*a*)-(1) and 2-(*b*)-(1).

3. The specific requirements for those acceptable after eleven years are as follows:

(*a*) The practice of pathology under circumstances acceptable to the board for a period of not less than eleven years. At the election of the candidates, a period not to exceed one year of straight or rotating clinical internship may be substituted for one of the eleven years. For those candidates in this category who have had some special study and training in pathologic anatomy or clinical pathology acceptable under paragraphs 2-(*a*), (*b*) or (*c*), double time credit will be allowed. Thus, if a person has two years of acceptable supervised study and training, only seven years of practice are required.

D. SPECIAL QUALIFICATIONS

1. Prior to Dec. 31, 1947, the board at its discretion certified candidates without examination, if the following conditions were met as of July 1, 1939:

(*a*) That the candidate has been for a period of five years of professorial rank in a department of pathology in an approved medical school; or

(*b*) That the candidate had been practicing pathology for ten years in a senior position in a hospital having an adequate department of pathology, approved by the Council on Medical Education and Hospitals of the American Medical Association or in an institution acceptable to the board.

CREDIT FOR MILITARY SERVICE

Credit may be allowed for training and experience in pathology in the federal services during the period July 1, 1940, to June 30, 1947. This credit for training or experience or both is given on an individual basis and will depend on the opportunity the applicant has had, as indicated by his or her medical service record in the specialty of pathology.

After July 1, 1947, credit for those military services will be given on the same basis as it is in civilian institutions, except that the rule in the preceding paragraph will not apply to reserve officers who continue on active duty or are called to active duty after that date.

SUBSPECIALTIES OF PATHOLOGY
(IN FORCE AFTER JULY 1, 1948)

Candidates who have met all general requirements and who have successfully passed the examination in pathologic anatomy and clinical pathology may apply for special designation of a subspecialty of pathologic anatomy or clinical pathology. The board, at its discretion, may approve this application, and after the candidate has successfully passed a prescribed examination, will issue a certificate designating the subspecialty, reading "Pathologic Anatomy (Neuropathology)," "Clinical Pathology (Clinical Bacteriology)," etc.

Candidates who have met all general requirements and who have had five years of special training and experience in a special field of pathology which is acceptable to the board may apply to the board for certification in that special field. The board, at its discretion, may approve this application, and after the candidate has successfully passed a prescribed examination, will issue a certificate reading "Neuropathology," "Clinical Bacteriology," etc.

APPLICATION BLANK AND FEE

Application must be made on the special form which may be procured from the secretary and forwarded with other required credentials and the application fee. An application cannot be given consideration by the board unless it is accompanied by the application fee.

The application or examination fee for candidates is $50. If the candidate fails in his examination he will be admitted to a second examination after one year, but not later than three years, without additional fee. After two reexaminations, the applicant must file a new application and pay an additional fee before a fourth examination will be given.

The application fee of $50 has been determined after careful consideration and is based on actual estimates of the expenses of examination and administration. None of the board members receive any compensation for their services except actual expenses incurred.

If the applicant, for any reason, is deemed ineligible for examination by the board, his fee will be returned; however, the application fee is not returnable after the candidate has officially been accepted for examination and notified to report for the examination.

EXAMINATIONS

Written and oral examinations will be held at the discretion of the board at or near the time and place of national medical meetings. If a number of applications from any region of the country are received, an examination in conjunction with a national medical meeting in that section will be arranged so that the financial outlay of the applicant in meeting the examiners will be as small as possible.

The examinations are to be based on the broad principles of pathology with emphasis on diagnosis, interpretation and technic. The applicant may apply for certification in either pathologic anatomy or clinical pathology or both.

The examinations in pathologic anatomy consist of a written test, an oral examination on gross pathology and a practical examination in microscopic pathology. The examination in clinical pathology consists of a written test and an oral and practical examination in the six phases of clinical pathology: bacteriology, hematology, clinical chemistry, parasitology, serology and clinical microscopy.

DEFINITIONS

1. Pathologic anatomy is that branch of pathology which deals with the morphologic aspects of disease, recognition being given that that definition covers two phases of pathology.

(*a*) The applied phase with special attention to the description and diagnosis of gross and microscopic specimens.

(*b*) The academic phases of teaching and general morphologic diagnosis.

2. Clinical pathology is that branch of pathology which deals with bacteriology, immunology, clinical chemistry, parasitology, hematology, endocrinology and clinical microscopy, the application of the physical and biologic sciences to the diagnosis, prognosis and treatment of disease.

BOARD NOT AN EDUCATIONAL INSTITUTION

The board is in no sense an educational institution and the certificates of the board are not to be considered degrees. Therefore, the certificate does not confer on any person legal qualifications, privileges, or license to practice medicine or the specialty of pathology. The board does not purport in any way to interfere with or limit the professional activities of any licensed physician. Its chief aim is to standardize the qualifications for the specialty of pathology and to issue certificates to those voluntarily complying with the requirements of the board.

CRITERIA FOR APPROVAL OF INSTITUTIONS FOR TRAINING IN PATHOLOGY

In Sections C-2-a, C-2-b, and C-2-c of the General Requirements, it is stated that candidates must have certain periods of supervised study and training. The American Board of Pathology, in cooperation with the Council on Medical Education and Hospitals of the American Medical Association, certifies hospitals in the United States as satisfactory for this supervised study and training. Lists of these hospitals are published in the Internship and Residency Number of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION each year. In addition, the American Board of Pathology recognizes certain hospitals outside the United States and certain laboratories not connected with hospitals in the United States. Inquiries concerning these should be directed to the Secretary of the Board.

The general criteria for approval of hospitals and laboratories are both qualitative and quantitative. On the score of quality, consideration is given to the qualifications of the Director of Laboratories and the associates and assistants, the supervision of work of the person in training, the excellence of the educational program, and the exactness and completeness of the laboratory work performed. On the score of quantity, consideration is given to the volume and distribution of laboratory work, both in absolute numbers and in relation to the size of the hospital, to the diversity and completeness of tests performed, to the size and equipment of the laboratory, and to the number of professional and nonprofessional personnel in relation to the volume of work.

In general, the qualitative standards will determine whether or not a hospital or laboratory is approved, and the quantitative standards will determine whether the approval is for 1, 2, 3 or 4 years of credit toward the requirements of the board.

In evaluation of applications the board takes into consideration the following criteria:

1. Director of laboratories or pathologist:
   - (*a*) It is required that the responsible head of the laboratory hold the certificate of the American Board of Pathology in the subject for which the hospital is approved, or be eligible for certification, and that he or she spend full time in the hospital. Full time is not interpreted in terms of hours, but rather that the director have no obligation outside the one approved hospital except in a university department of pathology where he and the residents have an opportunity to participate in the educational program;
   - (*b*) In special instances, the equivalent of full time by two or more qualified individuals will be accepted and one person need not spend the entire working day in the laboratory;
   - (*c*) In special instances, two or more hospitals will be approved as a unit with a single full-time director of laboratories if it is apparent that a satisfactory training program can be conducted;
   - (*d*) In hospitals with over 350 beds, it is expected that the professional staff, in addition to the pathologist, will include one or more persons with special training and qualifications in the subspecialties of clinical pathology.
2. Technicians:

   There are no absolute criteria, but it is expected that the number of technicians will be proportional to the volume of laboratory work and that, insofar as possible, the technicians will hold the certificate of the Registry of Medical Technologists of the American Society of Clinical Pathologists.
3. Floor space of laboratory:

   In general, it is believed that the size of the laboratory should be related to the size of the hospital and the volume of laboratory work. A minimal ratio is 4 square feet of space in the laboratory, including morgue and autopsy room, for each bed in the hospital.
4. Equipment for the laboratory:

   The variety and completeness of laboratory tests performed depends on the size of the hospital. In all hospitals there should be facilities for the more common tests in clinical pathology, for study of surgical specimens, and for performance of autopsies. In larger hospitals, the variety of tests performed should be larger and in hospitals with over 500 beds all recognized laboratory procedures should be available for study and treatment of the patients.
5. Autopsy percentage:

   No institution with a percentage of less than 15 will be approved, and those institutions with percentages between 15 and 40 will be given special scrutiny.
6. Examination of surgical specimens:

   All surgical specimens should be sent to the laboratory for gross examination, and microscopic examinations should be made unless there are general or special reasons not to do so.
7. Indices:

   There should be indices according to the names of the patients and the diagnoses of all surgical and autopsy material. Indices of clinical pathology are left to the discretion of the hospital.
8. Museum:

   There should be available fixed anatomic and pathologic specimens for study by the staff in proportion to the size of the hospital. Properly filed and indexed color photographs may in part be substituted for museum specimens.
9. Library:

   A reasonably complete library of modern books and recent unbound and bound journals should be available to the hospital, and the more commonly used books and journals should be on hand in the laboratory.
10. Educational program:

    The work of the person in training should be supervised. Conferences, seminars, journal clubs, and demonstrations should be conducted as frequently as the volume of material and the size of the staff justifies. A clinicopathologic conference must be held at least every 2 weeks.
11. Volume of laboratory work:
    - (*a*) As indicated in the following categories, no hospitals with less than 75 autopsies, 1,000 surgical specimens, and 25,000 tests in clinical pathology annually will be approved (Category D), except as outlined in the following paragraphs. It is the belief of the board that less material than this is inadequate for the training of a pathologist.
    - (*b*) In the field of clinical pathology, there should be a reasonable diversification of tests and in each category there should be sufficient absolute volume to provide training and experience. There are no absolute criteria, but special scrutiny will be given to a hospital in which there is not a reasonable diversification and variety.
    - (*c*) In the field of pathologic anatomy, a deficiency in either autopsies or surgical specimens may be made up by an excess of the other, if the deficiency does not exceed 20 per cent of the minimum required in the ratio of 1 autopsy to 75 surgical specimens. Thus in a hospital approved for one year in pathologic anatomy and clinical pathology, the minimums are 75 autopsies and 1,000 surgical specimens. If a hospital has 2,500 surgical specimens, it is acceptable if there are only 60 autopsies.

If a hospital has met these minimal qualitative and quantitative standards, it will then, on the basis of the following quantitative standards, be approved for 1, 2, 3 or 4 years of training in pathologic anatomy, or clinical pathology, or both, or some special field as shown for the number of residents indicated.

CATEGORY A. In both pathologic anatomy and clinical pathology for 4 years (as required of all candidates seeking certification in both fields who are examined after July 1, 1952).

Minimum: 150 autopsies, 1,750 surgical specimens, and 65,000 tests in clinical pathology for 4 residents. Additional resident for each 50 autopsies or 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY B. In both pathologic anatomy and clinical pathology for 3 years. This meets all requirements of the board for supervised training until July 1, 1952. Candidates examined after that date who seek certification in both subjects must take an additional year of supervised training in clinical pathology or pathologic anatomy, in another hospital, which is approved for the deficiency of training required.

Minimum: 125 autopsies, 1,500 surgical specimens and 50,000 tests in clinical pathology for 3 residents. Additional resident for each 50 autopsies, 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY C. In both pathologic anatomy and clinical pathology for 2 years. Candidates taking two years in these institutions must have an additional year (2 years after July 1, 1952) in an institution in category A, B or D.

Minimum: 100 autopsies, 1,250 surgical specimens, and 40,000 tests in clinical pathology for 2 residents. Additional resident for each 50 autopsies, or 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY D. In both pathologic anatomy and clinical pathology for 1 year. Candidates taking training in these institutions must have an additional 2 years (3 years after July 1, 1952) in institutions which are approved for the deficiency of training required.

Minimum: 75 autopsies, 1,000 surgical specimens, and 25,000 tests in clinical pathology for 1 resident. Additional resident for each 50 autopsies, or 500 surgical specimens, or 20,000 tests in clinical pathology.

Category E. In pathologic anatomy only, for 3 or more years. Candidates taking all training in these institutions will not be eligible for certification in clinical pathology unless an additional year (2 years after July 1, 1952) is taken in clinical pathology in institutions which are approved for the deficiency of training required.

Minimum: 175 autopsies and 1,500 surgical specimens for 3 residents. Additional resident for each 50 autopsies or 500 surgical specimens.

Category F. In pathologic anatomy only, for 2 years. Candidates taking training in these institutions will not be eligible for certification in clinical pathology unless they take one additional year full time in clinical pathology (2 years after July 1, 1952) in institutions which are approved for the deficiency of training required, and will be eligible in pathologic anatomy only if another year is taken in another institution which is approved for one or more years in pathologic anatomy.

Minimum: 125 autopsies and 1,250 surgical specimens for 2 residents. Additional resident for each 50 autopsies or 500 surgical specimens.

Category G. In pathologic anatomy only, for 1 year. Candidates training in these institutions will not be eligible in both pathologic anatomy and clinical pathology unless they take an additional year in pathologic anatomy and an additional year (2 years after July 1, 1952) in institutions which are approved for these periods of training. Candidates seeking certification in pathologic anatomy only must study an additional 2 years in institutions which are approved for that period of training.

Minimum: 75 autopsies and 1,000 surgical specimens for 1 resident. Additional resident for each 50 autopsies or 500 surgical specimens.

Category H. For postmortem part of pathologic anatomy for 2 years. Credit is never allowed for more than 2 years. Candidates taking training in these institutions may pursue further training as follows: 1. For pathologic anatomy only. An additional year in an institution in Category A, B, C, E, F or G with assignment to surgical pathology principally. 2. For pathologic anatomy and clinical pathology. An additional year (two years after July 1, 1952) in an institution in Category A, B, C, L, M or N with assignment to clinical pathology and ½ year assigned to surgical pathology principally, in an institution in Category A, B, C, or J.

Minimum: 125 autopsies for 2 residents. An additional resident for each 60 autopsies.

Category I. For postmortem part of pathologic anatomy for 1 year. Candidates taking training in these institutions may pursue further training as follows: 1. For pathologic anatomy only. An additional two years in an institution in Category A, B, C, E, F or G with general assignments. 2. For pathologic anatomy and clinical pathology. An additional year (2 years after July 1, 1952) in an institution in Category A, B, C, L, M or N with assignment to clinical pathology and 1 year to an institution in Category A, B, C, E, F or G.

Minimum: 75 autopsies for 1 resident.

Category J. Surgical pathology part of pathologic anatomy for 1 year. Credit is never allowed for more than 1 year and the director of the laboratory must hold the certificate of the American Board of Pathology in pathologic anatomy or be eligible for certification. Candidates training in these institutions may pursue further training as follows: 1. For pathologic anatomy only. An additional 2 years in an institution in Category H or in an institution of Category A, B or C with assignment to postmortem pathology only. 2. For pathologic anatomy and clinical pathology. An additional year (2 years after July 1, 1952) in an institution in Category A, B, C, L, M or N with assignment to clinical pathology full time, and an additional year to an institution in Category A, B, D, E, F, G or H with assignment to postmortem pathology full time.

Minimum: 2,000 surgical specimens for 1 resident. An additional resident for each 1,000 surgical specimens.

Category K. Special pathology as part of pathologic anatomy. Credit for not to exceed ¼ the time credit (1 year if seeking certification in pathologic anatomy only, 6 months if seeking both pathologic anatomy and clinical pathology) of candidates applying in pathologic anatomy may be taken in special laboratories with limited activities such as neuropathology, orthopedic pathology, ophthalmic pathology, etc. The candidate who receives credit in this category may, on request, have the field of special pathology designated on the certificate of the board.

Category L. Clinical pathology for 3 or more years. Candidates taking 3 years of training in these institutions will not be eligible for pathologic anatomy unless they take an additional 2 years in institutions approved for pathologic anatomy.

Minimum: 100,000 tests in clinical pathology for 3 residents. Additional resident for each 50,000 tests.

Category M. Clinical pathology for 2 years. Candidates taking two years' training in these institutions must take the same additional training as in Category L to be eligible for pathologic anatomy also. To be eligible for clinical pathology only, an additional year of clinical pathology must be taken in an approved institution.

Minimum: 75,000 tests in clinical pathology for 2 residents. An additional resident for each 50,000 tests.

Category N. Clinical pathology for 1 year. Candidates taking training in those institutions must take an additional 2 years in an institution in Category A, B, C, L or M assigned to clinical pathology for eligibility in clinical pathology only. To be eligible in pathologic anatomy and clinical pathology, an additional 2 years in approved institutions is required.

Minimum: 50,000 tests in clinical pathology for 1 resident.

Category O. Special clinical pathology as part of clinical pathology. Candidates applying for clinical pathology only may receive credit for not in excess of ¼ of the training period (1 year if seeking certification in clinical pathology only, six months if seeking both pathologic anatomy and clinical pathology) for work in a special field of clinical pathology, such as bacteriology, serology, etc. Under these circumstances, on request, the special field will be designated on the certificate of the board.

Category P. Research: Residence in certain institutions in which full time is devoted to research with a direct application to the practice of pathologic anatomy or clinical pathology may be accepted for credit not to exceed one-third the time requirement (20 months if no clinical internship, 16 months if a clinical internship was taken). The board encourages research and believes that all candidates should carry on investigation during their training in all institutions. Therefore, this category is only for those wishing to do full time research.

AMERICAN BOARD OF PEDIATRICS

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REQUIREMENTS FOR CERTIFICATION [1]

All candidates for examination for certification must meet the following requirements:

1. Graduation from an approved medical school.
2. One year of rotating, pediatric or other internship in an approved hospital.

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[1] To avoid misunderstanding, the board urges any candidate whose training is not clearly covered in these regulations to communicate with the office of the executive secretary. Whenever possible, this should be done before entering upon the appointment in question.

3. Two years of specialized residency-type training in an approved pediatric center.

On May 1, 1946, it was ruled that at least one year of the two years of required residency training must be a full time medical pediatric in-patient residency or internship in an approved institution. Because of the shortage of residencies, the board at this time voted that "temporarily" the second year of required residency training might be met in the ways listed below, although the board recommends that whenever possible candidates complete the two years as regular residents.

(a) All applicants admitted to approved graduate or postgraduate courses in pediatrics on or after July 1, 1950, shall receive residency training credit for that number of months actually spent in full time attendance at such courses, in excess of three months and up to a maximum of twelve months. No credit shall be granted for part time graduate or postgraduate courses. Courses of less than three months are credited only under special circumstances.

(b) A maximum of three months' credit each is allowed for full time residency type training in allied pediatric subjects, such as pediatric allergy, pediatric psychiatry, pediatric pathology, pediatric cardiology, newborn service, etc.

(c) A maximum of six months' credit is allowed for residency training in an approved contagious disease hospital.

4. A subsequent term of two years of specialized study or practice or a combination of the two. Credit for one year toward this requirement is allowed for medical military service regardless of the assignment. Credit in excess of one year may be granted if the medical officer is engaged in full-time pediatrics, or may be prorated if a considerable proportion of time is spent in pediatrics. It must be noted, however, that the maximum credit that any candidate may receive toward the practice requirement for work done prior to the completion of residency training is one year.

Attention is invited to the fact that the primary duty of the resident must be the care of patients under supervision, if full credit in satisfaction of the residency training requirement is expected. Research residencies which involve little or no clinical training are creditable for only three months. Research residencies which include significant clinical training may be prorated to a total of six months for a year of service. Teaching fellowships may not be offered in lieu of residency appointments.

Both research residencies and teaching fellowships are, of course, entirely acceptable in satisfaction of the practice or further study requirement. Portions of a research residency not applicable for residency training credit may be carried over for practice credit.

Preceptorships are not accepted for credit toward the residency requirement, but are accepted toward the practice requirement.

The board defines service in a pediatric center as full time devoted to rounded experience in an approved hospital which includes responsibility for care of patients on ward and outpatient services, experience with newborn, including prematures, and both therapeutic and preventive pediatrics. It is expected that the service will include adequate graduate training in the basic medical sciences, as well as in the clinical, laboratory and public health aspects of the specialty.

INFORMATION CONCERNING EXAMINATIONS

The examinations for certification are given in two sections: Part I is written; Part II is an oral examination.

PART I—WRITTEN

Written examinations are objective in type and are given once each year, usually in January, simultaneously at a number of places scattered throughout the country. Effective Jan. 1, 1953, candidates must pass the written examination before admission to the oral examination will be authorized. In case of failure, the written examination may be retaken at yearly intervals for a total of three times.

PART II—ORAL

Oral examinations are held four to six times each year at centers offering suitable facilities, in locations determined by proximity to the largest number of eligible candidates. One examination session each year is scheduled at a location closer to candidates from some less populous area. As far as possible, candidates are given a choice of location, taking into account date application is filed, date of eligibility and proximity to the examination site.

APPLICATION

Application must be made on special blanks which will be furnished by the executive secretary after a preliminary survey of the applicant's training. Applications may be submitted one year in advance of eligibility date, they will not be accepted earlier. The number of candidates admitted to a given written examination will be determined by the number who can be examined orally during that year, plus a reasonable number of alternates. The January, 1952, written examination list was filled by September, 1951.

FEES

The application fee is $100.00.

The full fee must be remitted with the application. Refund will be made only if the applicant is refused examination for reason other than failure in the same.

No additional fee is required for second and third written examinations. The fee for second and third oral examinations is $50.00 each.

Members of the board receive no financial recompense of any kind beyond their travel expenses to examinations and board meetings.

FAILURE IN EXAMINATIONS

As indicated above, a written examination must be passed before a candidate is eligible for oral examination. Reexaminations may be taken one and two years later. After a third failure, the situation will be reviewed by the board and a decision concerning subsequent procedure will be made.

Applicants who fail an oral examination become eligible for a second examination after a year has elapsed. After a second failure another examination will be permitted in one year. Before becoming eligible for a fourth examination a candidate must serve one year in a full-time medical inpatient residency in an approved institution. He must then reapply as a new candidate and pay a new fee.

LETTERS OF RECOMMENDATION AND BIBLIOGRAPHY

Letters from two competent pediatricians recommending each applicant must be sent to the executive secretary of the board. These letters should not accompany the application, but should be sent directly to the executive secretary. No member of the board, or official examiner, may recommend any applicant.

A list of papers or books published should be sent in with the application blank.

PURPOSE OF EXAMINATIONS

The purpose of these examinations is to determine the applicant's competency to practice pediatrics of high quality. Emphasis is therefore placed on practical aspects, but since good practice is founded on sound scientific data, the candidate must be prepared to demonstrate that he has a working knowledge of these basic data.

Clinical and abstract aspects of growth and development are fundamental parts of pediatric training, and about one-fourth of the oral examination is devoted to this phase of the subject. Diagnosis and treatment of disease fill another quarter, and the remainder of the examination is devoted to study and discussion of "cases."

Candidates who are admitted to the oral examination (Part II) will not be informed of their grade on the written portion. Their relative standing in Part I will, however be utilized in the final decision with regard to passing.

Candidates who fail after taking Part II will not be required to retake Part I but may be advised to do so in order that they may have an opportunity to improve a low score.

CERTIFICATE—NOT A DEGREE

Certificates granted are in no sense degrees, nor do they purport to confer on any person any legal qualification, privilege or license to practice pediatrics. Neither does the board intend in any way to limit the activities of any licensed physicians. It is merely attempting to standardize qualifications and to issue certificates to those who voluntarily comply with the requirements. Hence the fact that a physician holds a certificate of the board places no obstacle in the path of participation in community or hospital emergency coverage plans, nor does it place any restriction on holding the certificate of another board.

CERTIFICATION IN SUBSPECIALTY OF ALLERGY BY THE AMERICAN BOARD OF PEDIATRICS, INC.

MEMBERS—SUBSPECIALTY BOARD OF PEDIATRIC ALLERGY

William P. Buffum, Chairman, Providence, R. I.
William C. Deamer, San Francisco.
Jerome Glaser, Rochester, N. Y.
James Overall, Nashville, Tenn.
Bret Ratner, New York.
Albert Stoesser, Minneapolis, Minn.

The American Board of Pediatrics, Inc., has established certification in allergy as a subspecialty of pediatrics.

All candidates must pass the written and oral examinations in pediatrics before submitting an application for examination in allergy.

Each allergy application is individually considered and must be accepted by the subspecialty board.

INFORMATION CONCERNING EXAMINATIONS

Allergy examinations consist of written and oral portions. The written examination will be given once a year under a local monitor and must be passed before admission to the oral examination will be authorized. Oral examinations will be held at times and places designated by the Chairman of the Subspecialty Board. Ample notice will be sent to candidates by the executive secretary.

FAILURE IN EXAMINATIONS

As indicated above, a written examination must be passed before a candidate is eligible for oral examination. Reexaminations may be taken one and two years later. After a third failure, the situation will be reviewed by the board and a decision concerning subsequent procedure will be made.

Applicants who fail an oral examination become eligible for a second examination after a year has elapsed. After a second failure another examination will be permitted in one year. Before becoming eligible for a fourth examination a candidate must serve one year full time in a satisfactory allergy clinic and its hosptials including training in both allergy and pediatrics.

FEES

The application fee for certification in allergy will be $100.00 effective July 1, 1952.

The full fee must be remitted with the application. Refund will be made only if the applicant is refused examination for reason other than failure in the same.

No additional fee is required for second and third written examinations. The fee for second and third oral examinations is $50.00 each.

Members of the board receive no financial recompense of any kind beyond their travel expenses to examinations and board meetings.

Application forms will be forwarded on request to the office of the executive secretary and should be returned to that office when completed. All correspondence should be addressed to him.

REQUIREMENTS

1. Completion of two years of approved residency training in pediatrics.

2. Two years full time in a satisfactory allergy clinic and its hospital, including training in both allergy and pediatrics, or

3. One year full time in a satisfactory allergy clinic and its hospital, and two additional years of full attendance in a satisfactory allergy clinic and its activities, or

4. Five years attendance of not less than 300 hours per year at an allergy clinic associated with an approved medical school or in hospital clinics specifically approved for this purpose.

5. Preceptorship training alone is not acceptable. It may be utilized in combination with the methods outlined in paragraphs three and four above or with a full time formal graduate or postgraduate course in allergy to satisfy portions of the second and third years in three, or one of the five years in four.

The clinics should be in hospitals that have been accepted by the Council on Medical Education and Hospitals of the American Medical Association, and by the American Board of Pediatrics for training and certification in Pediatrics.

In general, a satisfactory allergy clinic is one which is headed by a certified allergist.

Under all methods of study, there must be presented evidence of serious work in research or clinical investigation, to demonstrate interest and industry in the study of allergy.

NATURE OF EXAMINATIONS

The candidates must expect a searching examination in both the theory and practice of allergy. This means that they must come prepared to do physical examinations on selected patients, take histories, and to discuss all details in diagnosis and treatment on the patients that have been assigned to them. In addition they may be called upon to discuss any theoretical question that the examiners may choose to bring up.

CERTIFICATE

When accepted the diplomate will receive from the American Board of Pediatrics a certificate in allergy and will be listed as a specialist in allergy.

Prospective applicants for certification in the subspecialty of allergy may apply to the executive secretary of the American Board of Pediatrics.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION

Robert L. Bennett, Chairman, Warm Springs, Ga.
William H. Schmidt, Vice Chairman, Philadelphia.
William Bierman, New York.
Donald A. Covalt, New York.
Kristian G. Hansson, New York.
O. Leonard Huddleston, Santa Monica, Calif.
A. B. C. Knudson, Washington, D. C.
Walter M. Solomon, Cleveland.
Arthur L. Watkins, Boston.
Walter J. Zeiter, Cleveland.
Earl C. Elkins, Secretary-Treasurer, 30 North Michigan Ave., Chicago 2.

QUALIFICATIONS FOR ELIGIBILITY TO EXAMINATION FOR CERTIFICATION

Each applicant for admission to the examination shall be required to present evidence that he has met the following standards:

1. GENERAL

A. Satisfactory moral and ethical standing in the profession.

B. Membership in the American Medical Association or membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. (Exceptions to the foregoing qualifications shall be made by the American Board of Physical Medicine and Rehabilitation for good and sufficient reasons.)

2. PROFESSIONAL

A. Graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association.

B. Completion of an internship, preferably of the general rotating type, of not less than one year in a hospital approved by the same council.

3. SPECIAL TRAINING

A. A period of study after the internship of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the same Council and by the American Board of Physical Medicine and Rehabilitation as competent to provide a satisfactory training in physical medicine and rehabilitation. Each year of training in such an approved program counts as two units against a total of eight units necessary for eligibility to both Parts I and II of the examination (see below). A total of only six credits may be earned in this manner.

B. This period of specialized preparation shall include: (1) graduate training in anatomy (including kinesiology and functional anatomy), physics (including radiation physics, electronics and medical instrumentation), physiology, pathology and other basic sciences which are necessary to the proper understanding of physical medicine and rehabilitation; (2) an active experience of not less than two years in hospitals, clinics, dispensaries and diagnostic laboratories recognized by the Council on Medical Education and Hospitals and the American Board of Physical Medicine and Rehabilitation; (3) the written and oral examinations, given by the American Board of Physical Medicine and Rehabilitation, shall include questions concerning the basic sciences, clinical practice and laboratory and public health problems as related to physical medicine and rehabilitation.

C. An additional period of not less than two years of practice in physical medicine and rehabilitation. One unit of credit is granted for each year of practice in physical medicine and rehabilitation.

D. Experience comparable to specialized training. Training in approved residency programs in closely allied medical surgical fields may be acceptable in whole or in part, but maximum credit is limited to two units. In selected cases, at the discretion of the Board, two years of specialization in physical medicine and rehabilitation may be accepted as equivalent to one year formal training.

METHOD OF EXAMINATION

The examination for certification by the American Board of Physical Medicine and Rehabilitation is given in two parts. Part I is written, Part II, oral. Part I alone may be taken after the completion of six units of credit. Upon the completion of Part I, Part II may be taken after an additional two units of credit are obtained. Parts I and II combined may be taken only after a total of eight units of credit have been obtained.

The written and oral examination will cover certain aspects of the basic sciences as well as clinical physical medicine and rehabilitation.

A. The basic sciences as related to physical medicine and rehabilitation will include:

(*a*) Anatomy (including kinesiology and functional anatomy).

(*b*) Physics (including radiation physics, electronics and instrumentation).

(*c*) Physiology (including physiology of movement and physiologic effect of the various physical agents used in physical medicine and rehabilitation).

(*d*) Pathology.

(*e*) Other fundamental sciences. The applicant will be examined concerning his knowledge of such subjects as biochemistry and bacteriology as related to physical medicine and rehabilitation.

B. The clinical aspects of physical medicine and rehabilitation will include:

(*a*) Those diseases and conditions that come within the field of physical medicine and rehabilitation. These include arthritis and the various rheumatic diseases, neuromuscular diseases such as poliomyelitis, cerebral palsy, and paraplegia, and musculoskeletal diseases, including the large group of traumatic and orthopedic conditions.

(*b*) The clinical usage of such physical agents as heat, water, electricity, ultraviolet radiation, massage and exercise, etc.

(*c*) An understanding of the basic principles of physical medicine and rehabilitation and the ability to coordinate the services of such personnel as clinical psychologist, social service worker, vocational guidance worker, etc.; the ability to prescribe specifically the therapy for patients for execution by the technical and ancillary personnel in a department of physical medicine and rehabilitation.

(*d*) A knowledge of the use of associated personnel within the field of physical medicine and rehabilitation such as the physical therapist, occupational therapist, clinical psychologist, and social service worker. This knowledge must include the ability to specifically prescribe patient care for execution by these therapeutic and technical groups.

APPLICATION

The application form shall contain a record of the candidate's premedical and medical training as well as of internships, graduate study, hospital or dispensary staff appointments, teaching positions, length of time practice has been limited to physical medicine and rehabilitation, membership in medical societies, medical papers published, and the names of three well known physicians to whom the board may write for professional and character references. Three letters of reference must be submitted with the application.

The application shall also be accompanied by one recent signed photograph of the candidate mounted on the application and the registration and examination fee of $100, which fee will cover both the written and oral examinations. (In case of rejection of application, this fee will be refunded with the exception of $15, which will be considered as a registration fee.)

CERTIFICATES

The certificate issued by the American Board of Physical Medicine and Rehabilitation shall be in such form as to comply with the articles of incorporation and bylaws and shall be signed by the chairman and the secretary-treasurer of the board and shall bear the official seal of the board.

Certificates of the board shall be issued to the effect that the applicant has been found qualified to practice physical medicine and rehabilitation.

AMERICAN BOARD OF PLASTIC SURGERY

WALLACE H. STEFFENSEN, Chairman, Grand Rapids, Mich.
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WILLIAM MILTON ADAMS, Memphis, Tenn.
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BRADFORD CANNON, Secretary-Treasurer, 330 Dartmouth St., Boston 16.
ESTELLE E. HILLERICH, Corresponding Secretary, 4647 Pershing Ave., St. Louis 8.

REQUIREMENTS

GENERAL QUALIFICATIONS

1. Moral and ethical standing in the profession satisfactory to the board.

The board, believing that the practice of "fee splitting" is pernicious, leading as it does to traffic in human life, will reserve the right to inquire particularly into any candidate's practice in regard to this question.

2. Those whose activities are limited to the practice of plastic surgery.

3. This board will accept as applicants for examination only those who are full citizens of the United States or Canada. Notarized statements, not original citizenship papers, attesting to the fact of full citizenship in the United States or Canada must

be furnished by foreign born applicants when the application is filed. Such candidates must have at least two years of practice in plastic surgery in North America after completing the training required by the board.

PROFESSIONAL REQUIREMENTS FOR QUALIFICATION

The board considers the requirements outlined below to be minimal in attaining its purposes, and encourages candidates to take advantage of broadening experience in other fields. Candidates must fulfill the requirements which are in force at the time of their examination and/or certification.

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a foreign school considered acceptable by the board.
2. Completion of an internship of not less than one year in a hospital approved by the same Council, or what would constitute in the opinion of the board the equivalent of such training.
3. Two years of postgraduate work in general surgery beyond the intern year, as a resident or an assistant resident in an approved hospital, or a period of training gained elsewhere judged by the board to be the equivalent of such training.
4. Training in general plastic surgery (including maxillofacial surgery) in an acceptable residency [1] or preceptorship for an additional period of not less than two years, also be taken in an approved hospital,[1] or under auspices satisfactory to this board.
5. During these years of training following the internship year, a candidate must hold positions of increasing responsibility for the care and management of patients with surgical conditions. When a candidate receives his training in more than one institution, it is equally imperative that he hold positions of increasing responsibility. He must have sufficient operative experience to acquire surgical skill and judgment through the performance of surgical operations with a high degree of responsibility, but under circumstances providing adequate opportunity for consultation and advice.
6. An additional period of not less than two years of practice in plastic surgery. If a candidate elects to spend one or two additional years in approved training in plastic surgery, one year of such training will be credited toward the required two years of private practice if it can be demonstrated that the candidate held a position of increasing responsibility. It is imperative that one year be in actual private practice in such instances.

The above training may be taken as a resident in surgery and in plastic surgery in an approved hospital, or under a preceptorship offering equivalent training. By the latter statement it is meant that one may secure the necessary and specified training as an assistant to an accredited surgeon providing suitable facilities for the education of the candidate are offered.

The period of special training should emphasize the relation of the basic sciences—anatomy, pathology, physiology, biochemistry, bacteriology—to the application of surgical principles which are fundamental in all branches of surgery, and especially to plastic surgery. In addition, the candidate must understand and be trained in the following subjects: the care of emergencies, shock, hemorrhage, blood replacement, electrolyte and fluid balance, choice of anesthetics, chemotherapy, acidosis and alkalosis, narcotics and hypnotics, wound healing, etc.

Because of vagaries of training, such as changes from one specialty to another, interims of military duty and other service to the country, the aptitude and skill of candidates, the board may, at its discretion, review and make recommendations for or against certification of certain applicants outside of the listed qualifications and requirements.

The board reserves the privilege of requesting lists of operations done solely by the candidate for one or more years, or of requesting special and extra examinations, written or oral and practical, and of requesting any specific data concerning the candidate that may be deemed advisable before making final decision for certification.

Eligibility rulings or an evaluation of a candidate's qualifications or training cannot be made by the secretary or by any one member of the board. Official evaluations of qualifications are made only by the Committee on Credentials and Requirements, or by the entire board where necessary, after a review of the candidate's formal application for such rulings. The applicant must allow at least four weeks for such requests to make the rounds of the committee.

TRAINING FACILITIES

The American Board of Plastic Surgery, in cooperation with the Council on Medical Education and Hospitals of the American Medical Association and the American College of Surgeons, evaluates training facilities in institutions providing acceptable residencies in plastic surgery. Neither the board nor its individual members can be responsible for the placing of applicants for training. The board will give no independent approval and will keep no independent list of approved residencies or preceptorships. The board will consider those residencies approved by the Council on Medical Education and Hospitals of the American Medical Association as acceptable facilities for training in plastic surgery.

For the time being, it is felt that too few residencies in plastic surgery exist to meet the training needs. In certain instances the board will accept, in lieu of the required two years' training in an approved residency, training in a preceptorship under a fully qualified plastic surgeon when such preceptorship is properly organized and supervised to give the trainee adequate experience and training in plastic surgery of a well-rounded nature. Certain established preceptorships are given full approval. New preceptorships will be given tentative approval in advance on presentation to the board by the preceptor of a well-rounded plan of training. In such instances the trainee will be required to keep a record of his experience. In tentatively approved preceptorships it would be well for a preceptor to report annually to the board the name and qualifications of any preceptee under his supervision, as well as the work done by the preceptee. The preceptee should report to the board every six months the number and type of operations performed both under supervision and independently, giving details of supplementary activities of his training. If the preceptorship is found to be adequate in scope, it will be transferred to the fully approved list. All those training in preceptorships must submit six month reports of their work.

It should be kept in mind by all that the primary interest of the board is to encourage well rounded training in plastic surgery with the aim of producing plastic surgeons capable of doing good work in the wide variety of cases which may come under their care. The standards set up by the board, both for preliminary general surgery and for specialized plastic surgery training, are established in an effort to further this aim. The quality of the training received should be reflected in the candidate's ability to achieve good results in his practice and the examinations of the board are an attempt to judge the ability of the candidate in the specialty of plastic surgery.

SUGGESTIONS FOR TRAINING IN PLASTIC SURGERY

A residency in plastic surgery is one in which a hospital appointment for training in plastic surgery is given the trainee. In a preceptorship in plastic surgery no such appointment is given.

While the board permits flexibility in training, approved residencies and preceptorships should be under fully qualified plastic surgeons. Those trained in preceptorships will be judged by the candidate's ability to make the most of his training and to show adequate ability in all phases of the subject.

There must be teaching in either a residency or a preceptorship—instruction in the basic sciences and in the basic principles of plastic surgery—if not in actual courses, then by conferences, ward rounds, lectures by men on the service or other services, or by visiting doctors.

A resident or assistant resident in plastic surgery should have a full time appointment from an A. M. A. Council-approved hospital or hospitals. A preceptee does not have such an appointment. A residency should preferably be in connection with a teaching hospital having medical school affiliations or be under the Dean's Committee of Veterans Administration hospitals. An acceptable residency is one that is approved by the Council on Medical Education and Hospitals of the American Medical Association.

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[1] An acceptable residency is one which has been approved by the Council on Medical Education and Hospitals of the American Medical Association.

Before training in plastic surgery is begun, the plastic surgeon in charge of the residency or preceptorship should ascertain that the trainee's preliminary training in general surgery meets the requirements of the board, that is two years of residency training in general surgery after the internship year.

The training in plastic surgery (at least two years) whether in a residency or a preceptorship, should cover a wide field of plastic and maxillofacial surgery, both as to type and anatomical distribution. There should be available sufficient material of a diversified nature so that the trainee will be able to pass the examinations of the board after the period of training and the two additional years of private practice. If the available material on one service is inadequate, the deficiency should be made up by affiliation with another plastic surgeon on another service so that a broad experience will be obtained in plastic surgery. The trainee should be provided an opportunity to operate under the direct supervision of the plastic surgeon in charge, and with increasing ability, to be given an opportunity to operate independently on suitable cases under more remote supervision.

RESIDENCY INFORMATION SERVICE

The Council on Medical Education and Hospitals of the American Medical Association maintains a "Residency Information Service," published semiannually, giving lists of available residency appointments in approved services in the specialties. This bulletin, showing available openings in residency appointments in plastic surgery, and other specialties, may be had on request from the Council.

MILITARY CREDIT

Credit for military service is given on an individual basis, each case being considered on its own merits and the amount of credit allowed is determined by the board when the information is submitted with the application.

MEDICAL OFFICER'S PROFESSIONAL TRAINING RECORD

The Medical Officer's Professional Training Record (DD Form 408) is a record maintained by individual Medical Corps officers for presentation to the various authorized accrediting boards toward certification. This record is presented by the officer to the boards for evaluation of the military experience acquired by Medical Corps officers while serving in the Army Medical Service. This form has been prepared by the Surgeons General of the armed services with the assistance of the Council on Medical Education and Hospitals of the American Medical Association and is distributed by the offices of the Surgeons General to their personnel. It is highly important that prospective applicants obtain a copy of this form and that it be submitted with their credentials for evaluation by the board.

CASE REPORTS

On approval by the board of a candidate's application for certification, each candidate is required to submit to the board thirty-five or more case reports illustrative of his independent work in the field of general plastic surgery. Case reports must be submitted within one year from the time of such request; otherwise a new application must be filed. These case reports shall conform to conditions which the board may from time to time specify and the case reports must be approved by the board before the candidate is admitted to examination. **Case reports must be received in the Office of the Board by Jan. 1 for those who desire to be considered for the spring (May-June) examinations of the board and by June 1 for the fall (October-November) examinations. There will be no exceptions to these two deadlines.**

The thirty-five case reports must be of a diversified nature and must be submitted to the office of the board, together with photographs. **To be accepted, case reports must be assembled according to the following instructions.** The group must include a variety of material from the entire body rather than a number of cases of one type, and should carry the candidate's personal deductions, conclusions and comments and should be sufficiently detailed to show if the conclusions drawn indicate a grasp of the subject and if the results justify the procedure.

Each case report should be individually assembled, typed on letter-size paper (8½ by 11 in.), with the candidate's name and the number of the case on each page. Each report should have a cover-sheet with the candidate's name, the number of the case, hospital number, diagnosis and a brief summary of the case. The pages of each report should be stapled together securely and placed in a letter-file folder, not heavier than the ordinary manila file-folder. Do not use paper clips or fasteners. Photographs of conditions and drawings of operative technique, illustrative of each case, should be included and securely attached to each case report, with the name of the candidate and the number of the case indicated. Cases should be chosen from the private practice of the candidate or from the hospital or clinic service. The initials, color, age and occupation of each patient should be stated, as should the name of the hospital where treated and dates of admission, operation and discharge. The important details of family history, if relevant, and of the previous history should be given. The history of the condition for which the patient consulted candidate should be stated clearly and concisely, indicating previous treatment, if any, and the mental, social or economic factors involved. The physical examination of the patient with special reference to the existing deformities should be carefully described. All laboratory and other special examinations, such as roentgenograms, which were made, should be reported, with a statement of what was determined by them. The indications for operation and for the type of operation employed should be given, and the preliminary treatment and the type of anesthesia used should be stated. A full description of the operative technique with methods of hemostasis, suture and drainage, if any, and the name of the assistant should be given. The late and early postoperative course and results should be described. Before and after photographs should be submitted, and all photographs should be uniform in size, not less than 3 by 4 in. (Kodachrome transparencies not acceptable), mounted on a sheet 8½ by 11 in. (letter-file folder weight), made by a sharp focus lens from untouched negatives with identical lighting conditions, exposure and developing, not reversed, to show conditions before and after operations with clear detail.

If the case reports, and lists of operation when requested, are approved, the candidate will receive subsequent information regarding taking the examinations. The board at its discretion may request certification of case reports by the hospital where the operations were performed. The following form should accompany the case reports: "I hereby certify that the planning and essential surgical procedures described herein were carried out by me as an independent operator."

Every candidate's final acceptability for examination is based not only on the evaluation of his training qualifications but on his professional ability as a plastic surgeon, his ethical standing in the community, and the strict limitation of his work to plastic surgery.

A candidate should remember that these case reports are documentary evidence of his ability and that the material in them and the manner of presentation are important evidences of his ability.

EXAMINATIONS

The qualifying examinations are divided into two parts, the written examination, and the oral and practical examination.

The examinations are given twice yearly, in the spring and fall. The spring examination is given immediately preceding, during or following the annual meeting of the American Association of Plastic Surgeons (usually in May), and the fall examination is given immediately preceding, during, or following the annual meeting of the American Society of Plastic and Reconstructive Surgery (usually in October). Candidates are required to go to the designated center for the qualifying examination, which lasts three days. These centers will be the city in which the meetings of these two organizations are held if the proper clinic and hospital facilities are available, otherwise in some nearby city where such material is available. Arrangements for all examinations are made by the Examination Committee.

The written examination will consume all of the first day and half of the second day. The oral and practical examination will consume the afternoon of the second day and all of the third day.

The subjects of the written examination are, (1) theory and practice of plastic surgery, (2) applied anatomy, applied physiology, (3) pathology, bacteriology, clinical laboratory methods, (pharmacology), (4) reaction of tissue to injury, surgical accidents, anesthesia.

A general oral examination pertaining to plastic surgery will be given. In the practical part of the examination, the examiners will present a group of patients for examination by the candidates, and the candidates will be quizzed on methods of procedure—diagnosis, treatment, technic, and so on. Slides of preoperative conditions will be shown on a screen and the candidate asked to make a quick diagnosis of the items and tabulate in the order of their importance and methods of treatment. Microscopic slides of the average pathological tissue falling within the province of the plastic surgeon will be given the candidates on which they will be asked to write a description and diagnosis.

Prior to the examination, the candidate will be visited at his place of practice by a member or members of the board to observe him operate and to examine a number of his pre- and postoperative cases.

To be considered as passing, the candidate will be required to receive a grade of at least 65 per cent in each portion of the written examination and an average of 75 per cent on the entire written and oral examination.

REEXAMINATIONS

Candidates who have failed in any portion of the examination may be admitted to another examination after one year, or within three years, except in such cases as the board may for good and sufficient reason deny a candidate the privilege of reexamination. A candidate who fails one reexamination will be admitted for further examination only after submitting evidence of additional study and preparation. The candidate must give 60 days' notice requesting reexamination and pay a fee of $25.00 for the written examination and $25.00 for the oral and practical examination. The examiners conducting the first examination will not be eligible to conduct the reexamination.

CERTIFICATION

After a candidate has met the requirements for eligibility and passed the examinations of the board, a certificate attesting his qualifications in plastic surgery will be issued to him by the board, signed by its officers and having the seal of the board affixed thereto. It shall be the prerogative of the board to determine the fitness professionally and ethically of any candidate for its certificate, and the action or decision of the board regarding the certification of any candidate shall be final.

The board is in no sense an educational institution and the certificates of the board are not to be considered as degrees. Therefore the certificate does not confer on any person legal qualifications, privileges, or license to practice medicine or the specialty of plastic surgery. The board does not purport in any way to interfere with or limit the professional activities of any licensed physician nor does it desire to interfere with any practitioners of medicine in any of their regular or legitimate activities.

The American Board of Plastic Surgery has never been concerned with measures that might gain special privileges or recognition for its certificants in the practice of plastic surgery. It is neither the intent nor has it been the purpose of the board to define requirements for membership on the staffs of hospitals. The prime object of the board is to pass judgment on the education and training of broadly competent and responsible plastic surgeons—not who shall or shall not perform plastic surgical operations. The board specifically disclaims interest in or recognition of differential emoluments that may be based on certification.

FEES

The fee for application and examination is $150. Of this sum, $25 must accompany the application and the remaining $125 must be paid when the candidate is notified of acceptance for examination. There will be no refunds. This fee may be increased at the discretion of the board. The board is a nonprofit organization and the fees of candidates are used solely for defraying the actual expenses of the board. The members of the board serve without remuneration. Because of the limited number of surgeons certified by this board it is necessary for a limited time to request a voluntary annual prorata contribution from diplomates after the first year's certification to help defray expenses.

AMERICAN BOARD OF PREVENTIVE MEDICINE

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Brig. Gen. Otis O. Benson, Vice Chairman in Aviation Medicine, Washington, D. C.
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V. A. Van Volkenburgh, Albany, N. Y.
Reginald M. Atwater, Alternate, New York.
Ernest L. Stebbins, Secretary-Treasurer, 615 North Wolfe Street, Baltimore.
John C. Hume, Assistant Secretary, Baltimore.

CONSULTANTS

Col. Tom Whayne (Army).
Capt. Otto L. Burton (Navy).
Erwin C. Drescher (Public Health Service).
Col. Fratis L. Duff (Air Force).
Katherine Bain (Children's Bureau).
George R. Callender (Veterans Administration).
Basil MacLean, Rochester, N. Y.

ELIGIBILITY REQUIREMENTS FOR EXAMINATION

General Requirements

1. Good moral character and high ethical and professional standing.

2. Graduation from a medical school in the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association, or from a foreign medical school satisfactory to the board.

3. An internship of at least one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association or in a foreign hospital satisfactory to the board.

4. Licensure to practice medicine in the United States or in the Dominion of Canada.

SPECIAL REQUIREMENTS IN PUBLIC HEALTH

1. Successful completion (after internship) of at least one academic year of graduate study leading to the degree of Master of Public Health or an equivalent degree or diploma; or training or study deemed by the board to be substantially equivalent to such graduate study:

2.* Residency (after internship) of at least two years of field experience in general public health practice, which included planned instruction, observation, and active participation in a comprehensive, organized, public health program, one year of which may be an approved clinical residency in a field directly related to public health;

3. A period (after internship) of not less than three years, in addition to 1 and 2 above, of special training in or teaching or practice of public health; and

4. Limitation of practice to full-time teaching or practice of public health as a specialty.

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* Approval of Residency training is in the process of development. Until such time as an adequate program of residency is developed, field training will be evaluated by the Board on an individual basis. Information as to approved residencies may be obtained from the Council on *Medical Education and Hospitals* or from the Secretary of the Board.

SPECIAL REQUIREMENTS IN AVIATION MEDICINE

1. Successful completion (after internship) of at least two academic years of graduate study in preventive medicine and aviation medicine, one year of which graduate study shall be in a school of public health accredited for the purpose of such graduate study by the American Public Health Association and one year of which shall be in a school of aviation medicine accredited for the purpose of such graduate study by the Council on Medical Education and Hospitals of the American Medical Association; or training and study deemed by the board to be substantially equivalent to such graduate study;

2. * Residency (after internship) of at least two years of supervised experience in aviation medical practice, which included planned instruction, observation, and active participation in a comprehensive, organized program of aviation medicine, one year of which may be an approved clinical residency in a field directly related to aviation medicine.

3. A period (after internship) of not less than two years, in addition to 1 and 2 above, of special training in or teaching or practice of aviation medicine;

4. Limitation of practice to full-time teaching, research or practice of aviation medicine; and

5. Regular and frequent participation in aerial flight.

Credit for training and experience in public health or aviation medicine while in military service will be considered on an individual basis, depending on the type of service.

APPLICATIONS

Each application for examination must be made on the prescribed form (which may be obtained from the secretary) and be accompanied by the required documentation, and must be filed with the secretary, ordinarily not less than 90 days prior to the date of the examination. The application must be accompanied by an application fee and two recent, clear, unmounted, autographed photographs of the applicant, one of which should be attached to the application and the other unattached.

FEES

The fee for application and examination is $90, payable as indicated below; additional fees are payable for reexamination, as set forth below, but no additional fee is payable for the issuance of a certificate.

Application fee, $15. No application will be considered unless accompanied by the application fee. The application fee is not refundable.

Examination fee, $75. This fee is payable when the candidate is notified of acceptance for examination, and, if paid prior thereto, is not refundable after such notification has been given.

No member of the board is authorized to give informal opinions as to the eligibility of the candidates. The determination of eligibility will be made only by the board after receiving full application information. Each candidate must comply with board regulations in effect at the time the examination is taken, and also those in effect at the time the certificate (if any) is issued, regardless of when the original application was filed. An applicant declared ineligible for admission to examination may refile or reopen his application on the basis of new or additional information within two years of the filing date of his original application without payment of an additional application fee.

Applicants who are declared eligible for examination but who fail to submit to examination within three years of the date of the filing of the application are required to file a new application and to pay a new application fee.

CERTIFICATION IN AVIATION MEDICINE WITHOUT EXAMINATION (THE FOUNDERS GROUP)

The bylaws authorize the board, for a limited period of time, to excuse from examination specialists in aviation medicine who have attained high academic rank or have had a minimum of ten years of distinguished service in the field of aviation medicine and are considered eligible by the board, whether or not they meet the eligibility requirements previously referred to. Applications for consideration as members of the Founders Group must be received not later than July 1, 1954. The application fee must accompany the application, and the examination fee is payable before certification even though the applicant be excused from examination.

EXAMINATIONS

Examinations will be held from time to time and in various places depending on need as indicated by applications received. It is expected that examinations will be held primarily in connection with the meetings of the American Public Health Association. For the convenience of military personnel assigned overseas the board will try to provide for special individual examinations at times when such officers are temporarily returned to the United States. The examination consists of two parts:

Part one is a comprehensive written examination designed to test the knowledge of the applicant in the general field of preventive medicine and public health.

Part two is an oral or practical examination which will usually be held on the day following the written examination. An endeavor will be made to adapt the details of the oral examination to each candidate's experience and practice. The examiners will report on each candidate to the assembled board, by which the results of the examination will be considered.

REEXAMINATION

Candidates failing the first examination taken may, upon timely request, be admitted to a second examination within 18 months following the examination failed, upon payment of an additional fee of $15. If the candidate fails the second examination, a period of eleven months must elapse before admission to a third examination. A fee of $25 is required for admission to the third examination. Candidates failing three examinations will not be admitted to any subsequent examinations unless the board so directs.

CERTIFICATION

On satisfactory completion of the examination and proof to the satisfaction of the board that the applicant is eligible for certification, a certificate will be issued to the effect that the person named has been found to be possessed of special knowledge in the field specified in his application. The certificate will be signed by the officers of the board and will have its seal affixed. Each certificate remains the property of the board, but the person to whom it is issued shall be entitled to its possession unless and until it is revoked. Any certificate issued by the board may be revoked if evidence, satisfactory to the board, is presented that the applicant was not eligible to receive it at the time of examination or issuance, or that he misstated, misrepresented, or concealed any pertinent fact, or that his license to practice medicine has been suspended or revoked, or that he has ceased to be engaged in the teaching or practice of the specialty in which he has been certified. The issuance of a certificate to any person does not constitute such a person a member of the board.

AMERICAN BOARD OF PROCTOLOGY

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Garnet W. Ault, Washington, D. C.
Harry E. Bacon, Philadelphia.
A. W. Martin Marino, Brooklyn.
Louis E. Moon, Omaha.
Hyrum R. Reichman, Salt Lake City.
Robert J. Rowe, Dallas.
R. A. Scarborough, San Francisco.
Louis A. Buie, Secretary, 102-110 Second Ave., S.W., Rochester, Minn.

Associate Members

J. Edwin Alford, Buffalo.
R. J. Jackman, Rochester, Minn.
Jack Kerr, Dallas.
Stuart T. Ross, Hempstead, N. Y.

Advisory Council

Curtiss Rosser, Dallas.
Louis J. Hirschman, Traverse City, Mich.

TYPES OF CERTIFICATION

An application for certification is a voluntary act. Two types of certification will be offered until Jan. 1, 1955. Certificates will be issued (1) to those who fulfil requirements for certification as specialists in the diagnosis and treatment of anorectal diseases exclusive of those conditions which require surgical operation within the abdomen and those which require radical operation for malignant disease of the rectum, and (2) to those who fulfil requirements for certification as specialists in the diagnosis and treatment of anorectal and colonic diseases. The essential difference between the two types of certification is that diplomates of the first type will not be certified to administer treatment which requires surgical operation within the abdominal cavity nor to perform radical operations for malignant disease of the rectum, while diplomates of the second type will be certified to administer such treatment and perform such operations. After Dec. 31, 1954, the first type of certification will be discontinued.

QUALIFICATIONS OF CANDIDATES

This board does not intend to interfere with any practitioner of medicine in his legitimate activities but wishes only to certify, in so far as possible, to the public that physicians who claim to be specialists in anorectal surgery and proctology possess proper qualifications. Suitable evidence of such qualifications can be obtained only if a physician can satisfy this board concerning his training and can thereafter pass examinations required for certification.

GENERAL REQUIREMENTS

All candidates shall comply with the current regulations of the board regardless of the time of filing applications. The secretary is not permitted to make decisions pertaining to requirements. Such decisions are made by the special committees or by the board upon review of the candidate's formal application.

All candidates shall have limited their practice to proctology and/or anorectal surgery.

All candidates shall appear personally before the board.

All candidates shall submit to the required examinations.

A candidate may be requested to deliver to the board a record of all of his patients hospitalized during the year prior to the date of submission of the application. Each record shall be endorsed by an appropriate official of the hospital and must include the diagnosis, treatment, outcome, and dates of admission and discharge from the hospital.

Candidates shall submit a bibliography of papers and books published.

Candidates shall possess the following qualifications:

1. High ethical and professional standing.
2. Authorization to practice medicine in the county, state, territory, or province of his residence.
3. Membership in the American Medical Association or the corresponding recognized medical association of the country in which he resides.

Specific requirements for applicants who desire certification in Proctology:

1. One year of internship in a hospital acceptable to the Council on Medical Education and Hospitals of the American Medical Association following completion of a four year course in a class A medical school.
2. Four years of graduate training, after internship, in medical institutions approved by the Council on Medical Education and Hospitals of the American Medical Association and recognized by the American Board of Proctology. This shall include graduate training in the basic sciences according to the standards prescribed by the Council on Medical Education and Hospitals of the American Medical Association and recognized by the American Board of Proctology. Of the four years of graduate training prior to examination for certification in proctology, two years shall be spent in an approved residency in proctology. When the majority of cases in the approved general surgical residency is in the field of abdominal surgery, three years of an approved general surgical residency and one year of an approved residency in proctology may be accepted.
3. In individual instances credit may be granted for training in proctology obtained in preceptorships approved by the American Board of Proctology.

FEES

1. Application fee. A fee of $25.00 shall be due and payable when the application blank is submitted by the candidate to the secretary.
2. Examination fee for anorectal surgery. A fee of $100.00 shall be due and payable when the candidate is notified that his application has been approved.
3. Examination fee for proctology. A fee of $150.00 shall be due and payable when the candidate is notified that his application has been approved.
4. A fee of $50.00 for a second reexamination in either Part I or Part II shall be due and payable when the candidate is notified that his application has been approved.
5. No fees shall be returnable to the candidate without approval by the board.
6. Each diplomate shall be required to pay a fee of $10.00 annually to the board for a period of 10 years following certification.

APPLICATION FOR CERTIFICATION

Each application for certification shall be filed with the secretary upon the prescribed form which shall bear the endorsement of two proctologists who may be consulted for information regarding the applicant. The endorsers shall be qualified proctologists but shall not be members of the board.

The application shall be accompanied by two unmounted autographed recent photographs of the applicant.

The application should be accompanied by letters of endorsement from appropriate sources.

EXAMINATIONS

Examinations shall be conducted at such times and places as announced in The Journal.

Part I in anorectal surgery and proctology shall consist of written examinations in the subjects of anatomy, physiology, pathology, bacteriology, biochemistry, and other basic sciences considered appropriate by the board.

Part II shall consist of written and oral examinations covering the theory and practice of Anorectal Surgery or Proctology. This examination will include roentgenologic interpretation and other subjects considered appropriate by the board.

A board member or designated examiner will conduct an examination of the applicant in his own community. This examination will involve the following procedures: 1. Surgical operations. 2. Hospital rounds. 3. Inspection of office and hospital records. 4. Conduct of office practice.

GRADES AND REEXAMINATIONS

An average of 75% is the minimum grade that will be acceptable for certification of a candidate.

If a candidate shall fail in Part I he will be required to wait one year before he may be reexamined.

If a candidate shall pass Part I and fail Part II he will be required to wait one year before he may be reexamined.

If a candidate shall fail the reexamination in Part I or Part II, he may petition the board for another examination. With such a petition, the candidate shall submit acceptable evidence of further preparation. Approval or denial of another reexamination shall be determined by the board.

CERTIFICATES

The certificate shall be in a form approved by the board. It shall be signed by the president or vice president and by the secretary, and sealed with the corporate seal.

The certificate in proctology shall indicate that the candidate has been found qualified to practice proctology.

The certificate in anorectal surgery shall indicate that the candidate has been found qualified to practice anorectal surgery.

The cost of both certificates shall be assumed by the board.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY

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George N. Raines, Vice President, Washington, D. C.
Bernard J. Alpers, Philadelphia.
Kenneth E. Appel, Philadelphia.
Russell N. DeJong, Ann Arbor, Mich.
Francis M. Forster, Washington, D. C.
Francis J. Gerty, Chicago.
William Malamud, Boston.
Frederick P. Moersch, Rochester, Minn.
George H. Stevenson, London, Ontario, Can.
Paul I. Yakovlev, Boston.
David A. Boyd Jr., Secretary-Treasurer, 102-110 Second Ave., S.W., Rochester, Minn.

APPLICATION FOR CERTIFICATES

An application, in order to be considered at any meeting of the board, must be in the hands of the secretary of the board not less than 90 days before the date of such meeting. A proper application form may be obtained from the secretary. Application may be made for certification in psychiatry or in neurology or in both fields. Applications will be formally considered only when made on the official application blank in such form as may be adopted from time to time by the board and when accompanied by an application fee in such amount as may be fixed by the board.

The secretary of the board, on receipt of an application, shall forthwith make inquiries from those to whom the candidate refers and from such other persons as the secretary may deem desirable and shall verify the candidate's record from the biographical records of the American Medical Association, after which he shall forward the application to the Committee on Credentials. This committee shall consider the application and other information available and notify the secretary whether the application is accepted. The certification of a candidate in either psychiatry or neurology, or both, shall be approved by a majority of the members of the entire board at any meeting held for such certification.

FORM OF CERTIFICATION

There shall be separate certification in psychiatry and in neurology and two certifications or a combined certification for those qualified in both fields. The certifications shall be in such form as is approved by the Board of Directors.

GENERAL REQUIREMENTS FOR APPLICANTS

Each applicant for a certificate must establish that:

(*a*) He is a physician duly licensed by law to practice medicine.

(*b*) He is of acceptable ethical and professional standing.

(*c*) He is now a member of the American Medical Association or a member of such medical societies as are recognized for purposes of certification by the Council on Medical Education and Hospitals of the American Medical Association. Exceptions to the foregoing may be made at the discretion of the board for good and sufficient reasons.

(*d*) He has received adequate training in psychiatry or neurology, or both, as a specialty.

CLASSES OF APPLICANTS

Class A.—Applicants who graduated from an approved medical school before the foundation of the board (1934) will not be held to the strict interpretation of the published requirements in formal graduate training. Under such circumstances the board will consider the training and experience of the applicant and decide whether or not he will be admitted to the examinations. After Jan. 1, 1954, for such graduates the board will consider 10 years of full-time acceptable experience in psychiatry or neurology in lieu of the formal training requirements. Should the candidate then apply for supplementary certification, the Credentials Committee will require five years of additional acceptable experience in the supplementary field.

Class B.—Applicants who graduated from an approved medical school after 1934 shall fulfil the following requirements.

PROFESSIONAL EDUCATION

1. Graduation from a medical school in the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association. In the case of an applicant whose medical training has been received outside the United States and Canada, such training must be satisfactory to the aforementioned Council.

2. Completion of a year's internship approved by the same Council in general medicine, general surgery, pediatrics or a rotating service.

3. The nine month wartime internships will be accepted as an equivalent of one year.

SPECIALIZED TRAINING

Admission to the examination for certification in psychiatry or in neurology requires a total of five calendar years of training and experience, three years of which must be specialized training obtained in approved training centers, plus two years of experience. Admission to the examination for certification in both psychiatry and neurology requires a total of six calendar years of training and experience, five years of which must be specialized training obtained in approved training centers, plus one year of experience. The specialized training may be subdivided into two and one-half years each in psychiatry and neurology or three years in one subject and two years in the other. The required years of experience should be spent in clinical practice with major responsibility for the care of patients.

This training for psychiatrists should include clinical work with psychoneurotic and psychotic patients, combined with the study of basic psychiatric sciences, medical and social psychology, psychopathology, psychotherapy and the physiological therapies, including a basic knowledge of the form, function and pertinent pathology of the nervous system. This training should be supervised and guided by teachers competent to develop skill and understanding in the utilization of such basic knowledge in dealing with patients. Mere factual knowledge is not sufficient. This training period should include instruction in the psychiatric aspects of general medical and surgical conditions and the behavior disorders of children and adolescents sufficient to develop practical ability to direct the treatment of such conditions. It should also include collaborative work with social workers, clinical psychologists, courts and other social agencies. The training program of the candidate for certification in psychiatry should include sufficient training in neurology to enable him to recognize and to evaluate the evidences of organic neurological disease.

The training for neurologists should be based on clinical work with adults and children with neurological disorders, including the neurological complications of medical and surgical conditions. This should be combined with study of basic neurological sciences, neuroanatomy, neurophysiology, neuropathology and neuroroentgenology. This training should be supervised and guided by teachers competent to develop skill and understanding in the utilization of such basic knowledge in dealing with patients. Mere factual knowledge is not sufficient. This training should include sufficient training in psychiatry to enable the candidate to recognize and to evaluate the common psychiatric reactions.

The board offers the foregoing two paragraphs as an outline of desirable training. If, however, the candidate has evidence of equivalent qualifications of training and experience not in the pattern here formulated, this evidence with appropriate documentary support may be included in his application for evaluation and possible approval by the board.

Candidates seeking certification in both neurology and psychiatry or supplementary certification in one after being certified in the other must submit evidence satisfactory to the board of an additional two years of full time basic training in the supplementary specialty.

Thus, no candidate is eligible for examination by the board until he has completed at least five years of special training and experience in neurology or psychiatry for a single certificate, or at least six years of special training and experience in neurology and psychiatry for certification in both neurology and psychiatry.

The board will give not more than six months of credit for not less than six months of training in an approved training center for internal medicine or pediatrics in lieu of six months of experience to candidates for the certificate in psychiatry or neurology, but not to candidates for certification in both psychiatry and neurology.

The board will give credit for one year of training in child psychiatry providing it is the third year of the required three years of special training required by the board and providing it is taken in a center approved by this board for training in child psychiatry. After July 1, 1956, training credit for work in the field of child psychiatry may be gained only by participation in a hospital residency training program that is regularly approved. After that date, all independent training approval of psychiatric clinics for children is discontinued.

The list of training programs approved by this board and by the Council on Medical Education and Hospitals of the American Medical Association may be found in the current issue of the Internship and Residency number of The Journal.

The secretary may at his discretion admit to examination candidates who lack not more than two months of the time requirement for certification with the understanding that the certificate will in no case be issued until satisfactory written evidence of completion of this requirement is submitted to the board.

TRAINING IN THE ARMED FORCES

Credit will be granted for one year of wartime military service in the Army, Navy, Public Health Service and Veterans Administration. Wartime to this board means Dec. 7, 1941 to Feb. 15, 1946. Further credit for specialized training will be granted only if the candidate has received training in an institution recognized by the Council on Medical Education and Hospitals of the American Medical Association and approved by this board. Time beyond one year spent in the above government agencies may be credited to experience providing the candidate has been regularly assigned to a service in neurology or psychiatry.

Training and experience credit toward requirements for examination will be granted for military duty in present emergency under certain conditions. This policy relates to active military medical duty since July 1, 1950. One year of training credit will be granted for one year spent in full-time psychiatric and/or neurological duties. Additional training credit will be granted for that amount of time spent in approved training programs. Experience credit will be granted for any remaining time spent in full-time psychiatric and/or neurological assignments. Double credit will not be granted for any single period of time.

EXAMINATIONS

Dates and places of examinations are set by the board at its discretion and shall be announced in The Journal, in the *American Journal of Psychiatry*, in the *Journal of Nervous and Mental Diseases*, and in the *Archives of Neurology and Psychiatry*.

Though the purpose of the examination is to test the competence of the candidate in psychiatry or neurology or both, it must not be forgotten that both these medical disciplines constitute part of the broad field of general medicine. The board requires some proficiency in neurology on the part of those it certifies in psychiatry, and vice versa, but examines the candidate in accordance with the certificate he seeks. The examinations will be of such type that no adequately trained person will fail and yet they will be sufficiently searching so that the specialist in fact may be separated from the specialist in name. The practical examination will include the examination of patients under the supervision of the examiner. The manner of examining patients, and the reasoning and deductions therefrom, will constitute an important part of the examination. Oral and practical examinations will be given in the basic sciences with special regard to their clinical implications. Written examinations may be given at the discretion of the board. The examination for certification in psychiatry will differ from the examination for certification in neurology.

PAYMENT OF FEES

The candidate on filing his application shall accompany it with an application fee of $35 which is not returnable. If a preliminary written examination has been decreed, an additional $25 fee will be required at the time of the applicant's acceptance. When notified by the secretary that he is eligible for the oral and practical examination, the candidate shall send to the secretary an examination fee of $65. A candidate who has been certified in either psychiatry or neurology and who has been admitted to supplementary examination for the other certificate shall pay an additional examination fee of $65.

A candidate who has failed in one examination is eligible for reexamination within one year on payment of a reexamination fee of $50. After the year has elapsed he must submit a new application and pay new application and examination fees. If he fails the reexamination, he may, after two years have elapsed, submit a new application and $35 fee, present evidence of further training and pay an examination fee of $65.

A candidate who fails in one or two subjects is eligible for reexamination in those subjects within one year on payment of a reexamination fee of $50. After the year has elapsed he must submit a new application and pay new application and examination fees and repeat the entire examination. If he fails the reexamination, he may apply again for the complete examination after two years on submission of evidence of further training and on payment of an application fee of $35. If admitted to the examination, he must pay a new examination fee of $65.

Any candidate who finds himself unable to attend an examination to which he has been admitted and does not notify the secretary at least six weeks before the date of the examination will forfeit half of his examination fee. Any candidate who fails to appear for examination within a period of three years following the date of notification of eligibility for examination shall be required to submit a new application and pay the attendant fee. If a candidate dies before his certificate is issued, all fees will be returned to his estate.

AMERICAN BOARD OF RADIOLOGY

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H. Dabney Kerr, Vice President, Iowa City.
Ralph S. Bromer, Bryn Mawr, Pa.
John D. Camp, Los Angeles.
D. S. Childs, Syracuse, N. Y.
A. H. Dowdy, Los Angeles.
Ross Golden, New York.
E. L. Jenkinson, Chicago.
I. H. Lockwood, Kansas City, Mo.
F. W. O'Brien, Boston.
J. W. Pierson, Baltimore.
U. V. Portmann, Cleveland.
Leo G. Rigler, Minneapolis.
B. P. Widmann, Philadelphia.
B. R. Kirklin, Secretary-Treasurer, 102-110 Second Avenue, S.W., Rochester, Minn.

CERTIFICATES

A certificate will be issued to each candidate who meets the requirements of the board, to the effect that the holder of the certificate has had adequate training in radiology and has successfully fulfilled the requirements of the board.

A certificate granted by this board does not of itself confer, or purport to confer, any degree, or legal qualifications, privileges or license to practice radiology. Certificates of the board shall be issued on one of four forms:

1. A certificate to the effect that the applicant has been found qualified to practice radiology in all of its branches.

2. A certificate to the effect that the applicant has been found qualified to practice radiology in one or more of the following special fields: (*a*) roentgenology; (*b*) diagnostic roentgenology; (*c*) therapeutic radiology.

3. A certificate to the effect that the applicant has been found qualified to practice radiological physics in all of its branches.

4. A certificate to the effect that the applicant has been found qualified to practice radiological physics in one or more of the following special fields: (*a*) x-ray and radium physics; (*b*) medical nuclear physics.

DEFINITIONS

For the purposes of this board, the following definitions are adopted:

1. Radiology is that branch of medicine which deals with the diagnostic and therapeutic application of radiant energy including roentgen rays and radium.

2. Roentgenology is that branch of radiology which deals with diagnostic and therapeutic application of roentgen rays.

3. Diagnostic roentgenology is that branch of radiology which deals with the diagnostic application of roentgen rays.

4. Therapeutic radiology is that branch of radiology which deals with the therapeutic application of roentgen rays, radium and radioactive isotopes.

5. Radiological physics is that branch of physics which deals with the medical application of roentgen rays and the radiations from radioisotopes, nuclear reactions and particle accelerators.

6. X-ray and radium physics is that branch of radiological physics which deals with roentgen rays and radium.

7. Medical nuclear physics is that branch of radiological physics which deals with radioisotopes, nuclear reactions and particle accelerators.

GENERAL REQUIREMENTS

Each applicant for admission to the examination for a certificate in radiology shall be required to present evidence that he has met the following standards:

GENERAL QUALIFICATIONS

1. Satisfactory moral and ethical standing in the profession.

2. A license to practice medicine in the state or county in which he resides.

3. Membership in the American Medical Association, or membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as herein provided, membership in other societies shall not be required.

4. That the applicant holds himself out to be a specialist in radiology or one of its branches as defined under "definitions," and that he devotes his time primarily and principally (at least 75 per cent) to the practice of radiology or one of its branches.

5. That he is a citizen of the United States or Canada. Candidates from other countries must be permanent residents of that country and native citizens thereof.

GENERAL PROFESSIONAL EDUCATION

1. Graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2. Completion of an internship of not less than one year in a hospital approved by the same Council.

SPECIAL TRAINING

1. After completion of the internship there shall be a period of special training in radiology of not less than three years in clinics, hospitals or dispensaries recognized and approved by the American Board of Radiology and the Council on Medical Education and Hospitals of the American Medical Association as competent to provide a satisfactory training in radiology. This period of specialized training shall include:

(*a*) Graduate training in pathology, radiation physics and radiobiology. A period of six months full-time training in pathologic anatomy is recommended but where this is not possible to arrange, the student during his three-year training period, may, by attending pathologic conferences, postmortem examinations and studying removed tissues, receive adequate training in pathology. It is recommended that radiation physics be taught by a combination of didactic lectures, practical examples and direct clinical demonstrations.

(*b*) An active experience (residency) of not less than twenty-four months in an institution, the radiologic department of which is recognized and approved by the American Board of Radiology and the Council on Medical Education and Hospitals of the American Medical Association as capable of providing satisfactory training.

(*c*) Examination in the basic sciences of radiology as well as the clinical aspects thereof. These examinations should be given by the student's instructors in order to allow those responsible for his training to certify to the board that he is adequately prepared.

APPLICATIONS

The board desires to appraise the candidate's educational opportunities (premedical, medical and radiologic), the ability of his instructors, his hospital and teaching positions, his original investigations, his contributions to radiologic literature, his membership in medical societies and his local and general reputation.

For this purpose, application must be made on a special blank which may be obtained from the secretary. No application will be considered unless made on the regular application blank. This application shall be forwarded with the required data, two unmounted photographs and the fee of $75 at least three months before the date of the examination.

FEE

A fee of $75 must accompany each application blank. This fee will not be returned, and no application will be considered until the fee is received. This fee has been carefully computed and is used entirely for administrative purposes. Members of the board and special examiners do not receive any compensation except for actual expenses connected with holding the examinations. As the number of candidates decreases, it may become necessary to raise the fee.

EXAMINATIONS

Each year the board will hold an examination in conjunction with the annual meeting of the American Medical Association, and, when sufficient applications are on file, a second examination will be held in conjunction with the annual meeting of the American Roentgen Ray Society and/or the Radiological Society of North America.

For the present, examinations consist of practical and oral examinations, although written examinations may be added later. The examinations are designed to test the candidate's fitness to practice radiology or one of its branches as a specialty. The board will endeavor to adapt this examination to the candidate's experience and years of practice. It will try especially to ascertain the breadth of his clinical experience, his knowledge of the basic sciences of radiology, and likewise his knowledge of the recent literature on radiology, and his general qualifications as a specialist in this branch of medicine.

The examination consists of tests in film interpretation and an oral examination in pathology, physiology, radiophysics and radiobiology, as well as the clinical application of roentgen rays, radium and radioactive isotopes. The applicant is also examined in "professional adaptability," in an attempt to ascertain his attitude toward his fellow practitioners and his patients.

Whenever an applicant fails to pass the examination, the board, if requested, will make suggestions as to suitable courses of instruction for the purpose of overcoming his deficiencies.

REEXAMINATIONS

If the candidate fails in the first examination he will be admitted to a second examination after one year has elapsed but not more than three years. He must give 90 days' notice of his intention to appear for reexamination and pay an additional fee of $35. If a candidate who has failed does not appear for reexamination before the expiration of three years, he will be required to make a new application and pay an additional fee of $75.

A candidate having failed twice may, after one year has elapsed, file a new application which must be accompanied by the fee of $75.

AMERICAN BOARD OF SURGERY

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John B. Flick, Secretary and Treasurer, 225 S. Fifteenth Street, Philadelphia, 2.
Cletus W. Schwegman, Assistant to the Secretary, Philadelphia.

REQUIREMENTS

GENERAL QUALIFICATIONS

1. Moral and ethical standing in the profession and in the community must be satisfactory to the board.

The board, believing that the practice of "fee splitting" is pernicious, leading as it does to a traffic in human life, will reserve the right to inquire particularly into any candidate's practice in regard to this question.

2. Certification is restricted to those whose activities are limited to the practice of surgery, including diagnosis, preoperative and postoperative care.

PRELIMINARY TRAINING

1. Graduation from a medical school of the United States or Canada accredited by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a foreign school considered acceptable to the board.

2. Completion of an internship (straight, mixed or rotating) of not less than one year in a hospital approved by the same Council, or its equivalent in the opinion of the board, such as a year of study devoted to a single branch of medicine.

SPECIAL TRAINING

INTRODUCTION

It is not and never has been the policy of the American Board of Surgery to require that a candidate perform a specific number of operations before taking its examination. The only two components of a residency which can be measured are the number of operations performed and the duration of the training period; the more significant and intangible factors are difficult to evaluate. These include:

1. The professional competence and the integrity of the senior staff and their ability and willingness to teach.
2. The responsibility given the resident.
3. The attitude of inquiry pervading the service.
4. The opportunity afforded the resident for study, investigation and teaching.

Adequate operative experience is concerned more with the variety and magnitude of operations performed than with actual numbers. In certain instances the board may require a special operative inspection.

The board interprets the term "general surgery" in a comprehensive manner and expects candidates to have knowledge of the basic principles applied in the treatment of fractures, trauma and head injuries. Knowledge of the more common procedures in plastic, gynecologic, orthopedic and urologic surgery is expected. Some elasticity of the program will be allowed to permit individuals with preferences for work in specialized fields, experimental surgery or research. In such a program the integration of basic sciences, particularly pathology, with clinical training and material is superior to formal courses.

The most important single factor in the development of a surgeon is the opportunity under guidance and supervision to grow by progressive and succeeding assignments to the stature of complete responsibility.

GROUPS I AND II

The requirements of the board to become eligible for its examinations may be fulfilled by either of the two programs outlined below. Both of these educational programs are considered by the board to be minimal in attaining its purposes.

Group I—A candidate must have completed a four-year graded residency or clinical fellowship in surgery in an institution or institutions acceptable to the board and conference committee. Three of the four years must be spent in general surgery. One of the four years may be spent in any manner which an acceptable program provides.

Group II—As yet there is not a sufficient number of hospitals capable of offering a four-year graded residency in surgery. The board, therefore, will continue to recognize three years of approved residency or fellowship training in a hospital approved by the conference committee. The two additional years over and above this to complete a total of five may be spent in practice limited to surgery carried out under acceptable supervision. One of these two years may be spent in the study of the basic sciences in a fully approved graduate school of medicine.

NOTE:—In both Group I and Group II, the supervising surgeon must vouch for the candidate's integrity, surgical judgment and technical skill. Sufficient operative work performed independently under supervision to fortify residency training must be attested to by a statement submitted to the board at the time the candidate makes application.

BASIC SCIENCES

The board does not insist that any special length of time be spent in the basic sciences, but knowledge of these sciences as applied to clinical surgery will be required in the examinations. The board will grant credit for postgraduate work in basic sciences (full time) provided that such study extends over a period of not less than six months.

MILITARY CREDIT

If a candidate has served in a government hospital or hospitals fully approved for residency training, such training will be acceptable to the board. Military credit may be extended to those candidates who have served in non-approved hospitals provided that the candidate has had a satisfactory surgical assignment with adequate and diversified clinical material and provided further that his work in surgery is carried out under the supervision of a surgeon acceptable to the board. Any credit extended in the latter category will be considered preceptorship credit and not residency credit.

REQUIREMENTS FOR FOREIGN BORN AND FOREIGN TRAINED APPLICANTS

Full citizenship status is required of residents of the United States. United States citizens who are residents of other countries, and citizens of other countries must have completed at least the three year residency training requirements in a hospital in the United States or Canada. In addition, they are required to hold a license to practice surgery in the country in which they hold citizenship. The Examination Committee may, in individual instances, accept foreign training as the equivalent of acceptable residency training in the United States.

APPLICATIONS

Prospective candidates for examination by the board should carefully read the board's requirements as set forth in its Booklet of Information. If, after becoming familiar with the board's requirements, the candidate needs advice as to his training, such may be had by writing to the board's office. When a candidate's training seems to meet the board's requirements, an application blank will be mailed. The processing of the completed application requires a minimum of three months by the board's office. The candidate will then be notified by the secretary as to his acceptability for examination, his deferment or his ineligibility.

The eligibility of candidates whose training in some respects does not conform to requirements published above will require the action of the Examination Committee of the board which may postpone the candidate's notification of acceptability. Every candidate's final acceptability for examination is based not only on the evaluation of his training qualifications, but on recommendation by the board's advisors as to his professional ability as a surgeon, his ethical standing in the community, and the strict limitation of his work to surgery.

THE FOUNDERS GROUP

The Founders Group, to which were admitted those who had already amply demonstrated their fitness as trained specialists in surgery, was closed in January, 1940.

EXAMINATIONS

The qualifying examination will be divided into Part I (written) and Part II (clinical, bedside and laboratory). In both of these parts, as previously stated, a knowledge of the practical application of the sciences fundamental to surgery will be required.

Part I

This examination will be given simultaneously in as many centers throughout the country as the board may determine suitable for the purpose, and is held twice a year—in the spring and fall. All applications must be on file in the board's office at least three months in advance of the examination. Candidates who are declared eligible are given ample notice as to the center to which they have been assigned for examination.

The examination in Part I is written and covers a one day period. There shall be two sessions of three hours each. The examination concerns itself primarily with general surgical problems including the application of the basic sciences of surgery to these problems.

Part II

The board may, at its discretion, require that a satisfactory operative report be filed before a candidate is eligible for Part II. Such a report shall be made by a member of the board, Founders Group, or one certified by examination, designated to be present during a major operative procedure performed by the candidate.

Part II of the examination shall be oral and practical and cover a one day period, the schedule being arranged somewhat as follows:

8:15 A. M.—Registration.

9 A. M. to 1 P. M.—Clinical surgery (diagnosis, management and the application of physiology, biochemistry and bacteriology, as the case being examined upon may offer an opportunity for doing so. Roentgenographic interpretation will also be included).

2 to 5 P. M.—Applied Anatomy and Surgical Pathology.

The board expects that every candidate shall be well prepared in applied anatomy and in surgical pathology. In the latter subject more stress is laid on an understanding of disease processes and their clinical implications than on the recognition of gross and microscopic lesions.

Examinations in Part II are conducted in certain centers of the country selected by the board. It is the board's desire to arrange these centers so as to geographically meet the needs of the candidates, on condition that suitable examination facilities can be provided. Examinations in Part II are conducted by members of the board together with selected diplomates of the board.

GRADES

A candidate must receive an average of 75 per cent for each part to be entitled to the board's certificate.

REEXAMINATIONS

Part I. Candidates who fail Part I are required to wait one year before becoming eligible for reexamination.

Part II. Candidates who fail Part II in its entirety and those who fail in the single subject of clinical surgery are required to wait one year before establishing eligibility for reexamination. Those who fail either anatomy or pathology are required to wait six months. The board expects that during this period the candidate will make a reasonable effort to prepare himself in the subject or subjects in which he has failed.

Should a candidate fail a reexamination in Part I or Part II, further examination privileges will be denied. Appeal for further examination under special circumstances, when satisfactory evidence of further training has been submitted, will be considered by the Examination Committee. The board may, however, for good and sufficient reason, deny a candidate the privilege of further reexamination.

FEES

The fee for the examination is $100, payable as follows: $10 registration fee, $30 for Part I and $60 for Part II.

Candidates shall be required to pay a fee of $30 for reexamination in Part I and $60 for reexamination in Part II.

This board is a nonprofit organization. All fees will be used, after a reasonable amount is set aside for necessary expenses, to aid in improving existing opportunities for the training of the surgeon. *The members of the board serve without remuneration.*

CERTIFICATE

After meeting the requirements for eligibility and passing the examinations, a certificate attesting to a candidate's qualifications in surgery will be issued by the board, signed by its officers.

The board has discharged its responsibilities by conducting examinations and has issued certificates of qualification to those surgeons who have met certain clearly specified educational requirements and have successfully passed its examinations. In discharging its responsibilities, the primary purpose of the board has been to establish and maintain desirable standards in the education and training of the young surgeon.

The American Board of Surgery has never been concerned with measures that might gain special privileges or recognition for its diplomates in the practice of surgery. *It is neither the intent nor has it been the purpose of the board to define requirements for membership on the staffs of hospitals.* The prime object of the board is to pass judgment on the education and training of broadly competent and responsible surgeons, not who shall or shall not perform surgical operations. The board specifically disclaims interest in or recognition of differential emoluments that may be based on certification.

BOARD OF THORACIC SURGERY

(An Affiliate of the American Board of Surgery)

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William M. Tuttle, Secretary-Treasurer, 1151 Taylor Avenue, Detroit 2, Mich.

FUNCTIONS OF THE BOARD

1. To Select Founder Members. For this group surgeons of the United States and Canada were chosen who had made meritorious contributions to thoracic surgery.

The Founders Group was kept open for two years after organization of the board.

It was officially closed April 14, 1951.

2. To conduct examinations of satisfactory candidates who seek certification by the board.

3. To improve the opportunities for the training of thoracic surgeons.

4. To set up principles of education to guide young surgeons who desire to prepare themselves for proficiency in thoracic surgery.

5. To issue certificates of qualification to all those meeting the board's requirements.

REQUIREMENTS

1. Certification by the American Board of Surgery.

2. Two years' training in thoracic surgery approved by the Board of Thoracic Surgery, or meritorious contributions to thoracic surgery. One of these two years may be spent during the four years of training in surgery required by the American Board of Surgery.

3. Written, oral and practical examination.

DEFINITION OF WHAT IS CONSIDERED ACCEPTABLE TRAINING IN THORACIC SURGERY

To qualify for the examination in thoracic surgery, the candidate shall have had two years of training in an active, well-integrated thoracic surgical clinic or clinics, or the equivalent amount of thoracic surgical training, on a mixed service consisting of thoracic and nonthoracic surgical cases. Adequate training in both the tuberculous and nontuberculous aspects of thoracic surgery is expected. In order to obtain this objective, combined residencies between institutions of different types may be advantageous. It is also required that the candidate be familiar with the basic sciences as related to thoracic surgery. Under exceptional circumstances certain surgeons may, by virtue of recognized proficiency in the surgical treatment of thoracic diseases, qualify for the examination at the discretion of the board.

APPLICATIONS

Prospective candidates desiring to apply for examination should consider whether they are able to meet the minimum requirements of the board. They should then submit a letter to the secretary's office, outlining briefly their training and experience in thoracic surgery and ask for an application form. An application form will not be sent unless evidence is submitted in a letter indicating that the prospective applicant appears to meet the minimum requirements.

EXAMINATIONS

The Board of Thoracic Surgery will be governed in general by the rules laid down by the American Board of Surgery pertaining to examination, as well as reexaminations.

Rules may be changed, however, at the discretion of the Board of Thoracic Surgery.

FEES

For the special examination in thoracic surgery and the issuing of a certificate, the fee will be $100. Fifteen dollars of this fee is to accompany the application and will be considered as a registration fee. It is nonreturnable to the applicant in case he is disapproved for examination.

The fee for reexamination will be $25.

AMERICAN BOARD OF UROLOGY

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George Gilbert Smith, Brookline, Mass.

APPLICATION BLANK; REQUIREMENTS FOR ALL APPLICANTS

Application for certification must be made on a special form. This will be provided by the secretary and must be returned to him accompanied by other required data and credentials, and by $50 of the examination fee.

Requirements for Applicants.—Each applicant, before he shall become eligible to take the examination for certification in urology, must:

A. Have graduated from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association and must have completed an internship of not less than one year in a hospital approved by the same council. (The former requirement is not applicable to a candidate who graduated from an institution now extinct, or whose graduation occurred before the American Medical Association had prepared a list of accredited medical schools.) All graduates of foreign medical schools must obtain a license to practice in the state or province in which they reside, the certificate of the National Board of Medical Examiners and/or the certificate of graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association as capable of providing training comparable with that recognized in a "Class A" medical school.

B. Establish in a manner satisfactory to this board that he is a physician duly licensed by law to practice medicine, that he is of high ethical and professional standing, and that he has received adequate special training in urology.

The board is attempting to increase and to standardize the facilities for urological training in teaching institutions, so that the expression "special training in urology" may be interpreted to include:

1. A period of study, after the internship, of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the Council on Medical Education and Hospitals of the American Medical Association as competent to provide a satisfactory training in the special field of urology.

The training requirements after the internship may be fulfilled in one of the following ways:

(*a*) A three-year residency in urology.

When a resident obtains a senior rating or is in his final year of training, he should be in charge of the examination and treatment (surgical or otherwise), of an ample number of patients under the supervision of the senior consultant or attending urologist who must be a certificatee of the American Board of Urology.

(*b*) A second year of rotating internship or a one-year residency, preferably in general surgery, followed by a two year urologic residency, which should have the same status as the last two years of a three year urologic residency.

(*c*) Preceptorship.

This type of training may be accepted, but it is not encouraged.

This, and other variations from training described above, must be supported by evidence that the candidate has had training comparable with one of the two preceding types of residencies.

2. An additional period of not less than two years in the practice of urology in the city from which he makes application.

These special requirements conform with the suggestions made by the Council on Medical Education and Hospitals of the American Medical Association.

After June 30, 1955, training requirements, after the internship, may be fulfilled in one of the following ways:

1. One year general surgery. Three years formal training in urology.

2. Two years of general surgery. Two years formal training in urology.

3. One year of general surgery. One year review of basic sciences or some special research. Two years of formal training in urology.

4. One year general surgery. Two years of formal training in urology. One year of credit for two years in a preceptorship, to be approved by the Credentials Committee and the board.

C. Make application to the American Board of Urology, whose duty it shall be to investigate the applicant's credentials and make a survey of his character.

D. Assure the board that he is engaged in the practice of urology and that he intends to continue to be so engaged.

E. Membership in the American Medical Association or comparable national medical association is recommended.

Any candidate who starts training before June 30, 1955, under the old requirements, may complete the program of the old requirements and thereby become acceptable for examination. No more candidates will be accepted for examination whose training has been entirely on a preceptorship basis started after March 1, 1951.

FEE

The examination fee is $150. (This fee will be increased when the expense of the examinations and other activities of the board demand.) Fifty dollars must accompany the application. If, on investigation, an applicant is found lacking in any of the requirements stated above, he will be notified that he is ineligible for examination. One hundred dollars must be paid when the applicant is accepted as a candidate for certification. Neither fee shall be returnable in any event.

If a candidate fails, he will be permitted a second examination after one year or within three years, without additional fee, but he must give 60 days' notice of his intention to appear for reexamination. After an applicant has failed twice, he must file a new application and pay a second fee.

REQUIREMENTS FOR CERTIFICATION

According to the by-laws of the American Board of Urology, applications received from applicants for certification shall be examined by the Credentials Committee and reviewed by the board. When additional data are required to complete the application, these will be requested by the secretary.

The requirements for certification include: preparation of reports of twenty-five representative (not necessarily consecutive) major urological cases from private cases, which must contain all items essential for diagnosis, therapy, prognosis, results of treatment, etc.; oral-clinical examinations, written examinations and personal appearance before the board.

In specific instances, the board may waive any part of these requirements, with the exception of the item of personal appearance.

Each candidate will receive a notice of the time and place of the examinations, and an appointment for his personal appearance before the board.

EXAMINATIONS AND REPORTS OF CASE HISTORIES

The board will hold one examination per year. This may be held in association with the annual meetings of the American Urological Association or the American Medical Association, when this is practicable, or at other times and places that the board may select, or deem expedient.

The written examinations are designed to test the candidate's preparation in, and his knowledge of, the whole field of urology, including the fundamental subjects: pathology, anatomy, physiology, embryology, bacteriology, physiological chemistry and endocrinology. These may be given at the time of the oral-clinical examination, or may be held on certain dates simultaneously in different parts of the country at places convenient for candidates. The examination in pathology will consist of the identification of gross specimens and of sections of tissue observed through the microscope. The examination in anatomy, physiology, embryology, bacteriology, physiological chemistry and endocrinology will be a test of the candidate's working knowledge of these subjects as they are related to the practice of urology.

The oral-clinical examination will consist of discussions of common urological conditions. The subjects forming the basis of this examination are urography; diseases of the genital organs, including the prostate; diseases of the urinary bladder and diseases of the ureters and kidneys. The examination may deal directly with data found in the reports of case histories that the candidates have submitted. It will ascertain the candidate's familiarity with recent literature, the breadth of his clinical experience and his general qualifications for practice in the specialty of urology.

The professional adaptability of each candidate will be investigated in an attempt to determine his ethical conduct and his attitude toward his patients and fellow practitioners.

The reports of twenty-five major urological cases must be representative cases from private practice. The reports must be typewritten on 8½ by 11 paper and in duplicate, but need not be on any special form.

Complete index lists must accompany the reports. If they are obtained from more than one hospital they must be consecutive and a separate index list of each group should be provided. These lists must state the operator's name at the head of each page, the name of the patient, the hospital and admission number, and the dates of operation. Statements from the superintendents of the hospitals attesting that the candidate was the operator *must be included.* With the twenty-five case reports there must also be an index, in consecutive order, of all major and minor urological surgery done during the last two years of practice. The lists should be filed in the secretary's office for verification purposes.

The data should be placed under proper headings and the arrangement of these should conform to the sequence of events incidental to the patient's admission to the hospital or clinic, the examinations made and treatment prescribed.

Sufficient data should appear in these so that the examiner will know that a proper history was taken and that a thorough examination, including a complete physical survey, was made.

The board requires that all of the essential points of the history and examination, as well as a complete description of the surgical procedure, shall be given. Emphasis should be placed on the following items: preoperative diagnosis, clinical and pathological diagnosis, laboratory data, including cultures of urine and chemical analysis of calculi; summary of postoperative course with special reference to morbidity, clinical findings at time of discharge from the hospital and subsequent follow-up reports.

A final short paragraph *must be prepared* for each case. This must include the candidate's interpretation of the history in terms of pathology; the basis for the diagnosis; the facts that determined the treatment prescribed, whether surgical or otherwise; the course of treatment to be pursued following discharge from the hospital or clinic; a critical discussion of the knowledge gained from the proper handling of the case, or from the errors made (if any) in the diagnosis and method of treatment.

Each candidate must assume personal responsibility for the data in his case reports, including autopsy findings and interpretation of urograms.

A candidate must remember that these case reports are documentary evidence of his ability and that the material in them and the manner of presentation are important evidences of his competence as a urologist.

The deadline for the receipt of case histories each year is September 1.

Satisfactory case reports must be submitted before a candidate will be permitted to continue with other parts of his examination. If case reports are pronounced unsatisfactory by more than one examiner, the candidate will be informed of this and requested to prepare others.

LIMITATIONS OF FUNCTIONS OF THE BOARD

The conferring of degrees, "Doctor of Medicine" or "Bachelor of Medicine" remains with the universities, where it belongs. This board makes no attempt to control the practice of urology by license, or legal regulation and in no way interferes with or limits the professional activities of any duly licensed physician.

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ANNUAL REPORT ON INTERNSHIPS AND RESIDENCIES

In this issue, the Council on Medical Education and Hospitals presents its 27th Annual Report on Internships and Residencies together with a directory of Council-approved programs. The report includes basic information relating to the field of graduate medical education. According to the report, there are now 1,313 hospitals in the United States and its possessions in which internship or residency programs are being conducted. Last year, there were 24,512 interns and residents on duty in these hospitals, including federal, other governmental, and civilian institutions. The effect in terms of patient care of this large number of physicians serving in these hospitals in a full-time capacity is evident, the report states.

As of Sept. 1, 1952, there were 853 hospitals conducting approved intern programs. They offered a total of 10,548 internships, of which 9,497 (90%) were rotating in type. There were a total of 7,645 interns reported on duty last year. Of these, from 1,300 to 1,400 were estimated to be graduates of foreign medical schools. For two successive years, the number of internship positions reported unfilled has been approximately 3,000. In considering the problem of the intern shortage, the report points out, this figure can be considered more accurate than that obtained by comparing the total number of internships with the annual number of medical school graduates in the United States. The internship occupancy rate for all hospitals remained the same as last year at 72%.

Tabular data presented in the report showed that there are now 1,131 hospitals in which approved training at the residency level is being offered, representing 4,634 programs in 27 specialties and general practice. These hospitals provide appointments for 10,285 first year residents and 22,292 positions at all levels, i. e., first, second, third, and fourth years. Specialties in which a relatively high percentage of positions were filled included thoracic surgery, obstetrics-gynecology, general surgery, ophthalmology, pediatrics, and plastic surgery. Those with low occupancy rates included proctology, allergy, physical medicine, general practice, and pathology. There were 16,867 residency positions filled during the reporting period, representing 76% of the total number available. The report comments on the fact that the percentages of vacancies in internship and residency positions are approximately the same and that the problem of house shortages should be considered in its entirety rather than *in terms of internship or residency vacancies.*

It has been said that the development of the internship and residency program in the United States has been one of the more important contributions that American medicine has made to medical education. If graduate education is to achieve its objectives, it must be continually reevaluated by those concerned with its conduct. The Annual Report provides a body of essential information for such an appraisal that is available from no other source. The Council for its efforts in preparing this report and the medical staffs and hospital administrators who provided the basic data are deserving of commendation. Without this information, an evaluation of the current status of graduate education in the United States would be difficult if not impossible to make. The lists of approved services also are indispensable to many persons, organizations, and agencies interested in graduate education. As the Directory of Approved Internships and Residencies, it has become recognized as an official source of information by many federal and state governmental agencies. The Council makes grateful acknowledgment in the report to the hospitals, American Boards, medical schools, and federal agencies through whose assistance and cooperation the publication of the report and the directory is made possible.

THE INTERN SHORTAGE

The perennial problem of the shortage of interns is again brought sharply into focus in the Annual Report on Internships and Residencies, which points out that for the second successive year about 3,000 internships throughout the United States were vacant. The dilemma presented by the wide disparity between the number of applicants and the number of intern appointments available has been the subject of much discussion and serious study for the past several years. It may be pertinent, therefore, to raise the question as to why a satisfactory solution to the problem has not been found.

There are, quite obviously, only two ways by which the present situation can be resolved, or at least ameliorated. The first involves an increase in the number of available interns, either through an expansion of present enrollments in medical schools in this country or through the appointment of larger numbers of graduates of foreign medical schools. As to the former, enrollments in medical schools are now at an all-time high, with 27,688 students registered for the academic year 1952-1953.[1] Further increases in the number of students graduating can be anticipated as additional four year schools are developed. It is probable, however, that schools now in existence are operating at close to full capacity and that additional students from these schools will be limited.

The report states that it can be estimated that there are 1,300 to 1,400 graduates of foreign medical schools currently serving as interns in hospitals in this country. Whether the number of these graduates can or should be increased is moot. There is the practical problem of integrating persons of diverse educational backgrounds, frequently with language handicaps, into a sound training program. Further, the question of their subsequent eligibility for licensure should be given serious consideration in offering these applicants appointments, after completion of which they may find themselves at a dead end. Again, the possibility of increasing the number of eligible applicants for internship positions by this means has definite limitations.

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[1] Medical Education in the United States and Canada, report by the Council on Medical Education and Hospitals, J. A. M. A. **153**: 118 (Sept. 12) 1953.

The second approach to the problem, then, involves a reduction in the number of internships. One method of achieving this end lies in extending the length of internships to two years rather than the present 12 months currently required in the majority of approved hospitals. It is evident that, were programs of 24 months' duration adopted by all hospitals, the annual requirement for interns would be halved. It is unlikely, however, that such a course could be adopted on a nation-wide basis for a number of reasons, not the least of which is the matter of deferment of medical school graduates for military service, presently limited to one year. There are other equally cogent reasons why such a plan would not be feasible, among others the time that would be added to that already required to prepare the young graduate for practice, already considered by many as over-long, and the effect such a course would have on men preparing for the practice of a specialty.

There remains then the alternative of reducing the number of available internships by curtailing the number of approved hospitals, by limiting the number of internships in each hospital, or by a combination of both these means. An arbitrary limitation in the number of approved hospitals could not be justified in principle or from the standpoint of the legality of such action. Certainly such an approach would in no way solve the problem of the individual hospitals that would be involved. In the past, the Council has attempted to effect a reduction in the number of internships through requesting hospitals to limit on a voluntary basis the number of internships offered. This proposal was not successful, principally, it is believed, because the plan was not well enough understood and because it came at a time when there was an increased demand for interns due to the induction into the military services of a large number of residents with a consequent shortage of house staff at this level. More recently the Advisory Committee on Internships recommended a provision that hospitals must maintain an intern occupancy rate of at least two-thirds of the requested number of interns in order to qualify for continued approval. This requirement placed the responsibility for determining the numbers of internship appointments on the individual hospitals and was, in effect, a self-regulatory mechanism. The "two-thirds rule," however, has not been activated.

There appears, then, to be no simple solution to this multifaceted problem. A continuing reevaluation of hospitals approved for intern education must be and is being made. Hospital staffs must critically evaluate their potential for training interns and seek other means for providing the services for which interns are ordinarily responsible, if through that self-appraisal it is evident that a sound educational program cannot be organized and carried out. Larger hospitals, particularly those with complete house staff structures from clerkships through residencies, should analyze realistically the duties and responsibilities of all members of the house staff and appoint interns only in such numbers as are justifiable from the standpoint of sound training and not convenience or service. Through the concerted efforts of all concerned with intern education, the accrediting agency, medical educators, hospital staffs and administrators, and others, a solution to the intern shortage can and must be found. It will require, however, a thorough understanding of the problems involved, a realistic and forceful approach, and the complete cooperation of the organizations, institutions, and individuals involved if the objective is to be reached.

PHYSICIANS FOR ARMED FORCES

Spokesmen for the Office of the Assistant Secretary of Defense for Health and Medical Affairs have provided THE JOURNAL with certain additional information regarding the editorial in the September 5 issue entitled "Armed Forces Faced with Surplus of Medical Officers." This information will be of interest to physicians liable for military service. The spokesmen reported that several actions have been taken to minimize the impact on the military services of the large number of volunteers referred to in the earlier editorial. The principal actions taken, which it is said will mitigate the problem, involve the interservice transfer of volunteer physicians from the Army to the Navy and the Air Force and the postponement of active duty orders for the present for the majority of the 466 reservists commissioned in the Army through the August Selective Service draft call.

Defense officials stated that as a result of these actions almost two-thirds of the 1,200 physicians referred to in the editorial will not enter on active duty in the Army, Navy, or Air Force during this fiscal year. They also emphasized that the armed forces will have on duty by June, 1954, an estimated 2,400 doctors less than they had the previous year. The Defense Department spokesmen concluded by stating that it appears at this time that it will not be necessary to have any further involuntary calls of physicians for at least 12 months.

This additional information is encouraging, and, if the proposed plans are carried to completion, they will do much to alleviate the uncertainty and doubt that has arisen over the actual need for physicians in the armed forces. It obviously will be necessary for such plans to be reviewed from time to time, for example, 12 to 15 months from now, when the need for physicians may become more acute, and reports to keep the medical profession informed will appear in THE JOURNAL as indicated. In the meantime, questions on medical military matters can be directed to the office of the Council on National Emergency Medical Service, American Medical Association.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

One of the most significant developments in the history of hospital-physician relationships was achieved at the recent annual session of the American Hospital Association in San Francisco. The House of Delegates of the AHA unanimously adopted the report of the Joint Committee on Hospital-Physician Relationships, which had already been unanimously approved by the House of Delegates of the American Medical Association last June.

This action was the culmination of many months of joint meetings by trustees of the AHA and the A.M.A. I personally took part in most of those sessions and know the careful thinking and the hard work that went into the drafting of the agreement. As Dr. Edwin L. Crosby, immediate past-president of the AHA, so ably stated: "This is a milestone in the development of better understanding between physicians and hospital administrators. It is an indication that every possible effort is being made by doctors and hospitals to provide the highest quality care to patients."

As far as I know, this was the first time that a joint committee of A.M.A. and AHA trustees had ever been formed to iron out the mutual problems of doctors and hospitals and to develop working procedures that would accrue entirely to the benefit of the patient. Here are the guiding principles that were embodied in the joint report:

"1. The general purpose of hospitals and physicians is to aid each other in the delivery of the best possible medical care to patients. To attain such a purpose requires full cooperation among medical staffs, governing boards and administrative heads of hospitals. One important method of attaining this objective is that duly designated representatives of the medical staff shall have free and direct access to the governing board with due consideration to the position of the administrator as chief executive officer of the hospital. The various methods by which the medical staff may have access to the hospital governing board follow.

"a. The executive committee of the medical staff and a committee of the governing board with the hospital administrator can serve as a joint committee.

"b. Representatives of the medical staff can serve as members of the medical staff committee of the governing board with the hospital administrator.

"c. Representatives elected by the medical staff can attend meetings of the hospital governing board.

"d. Members of the medical staff can be members of the hospital governing board.

"2. The professional evaluation of chiefs of service and members of the medical staff should be the responsibility of the medical profession. The method of selection of these individuals must be subject to local arrangements and local conditions. In any such arrangement, however, the principle of the freedom of the staff to make recommendations, subject to the approval of the hospital governing board, should be recognized.

"3. The medical profession and the hospitals recognize that certain special services, such as anesthesiology, pathology, radiology, and physical medicine, are integral parts of the practice of medicine and of the services necessary for hospital patients. Physicians in these fields should have the professional status of other members of the medical staff. Chiefs in these specialties must assume also the administrative responsibilities and relationships customarily associated with such positions.

"4 The right of an individual to develop the terms of his services on the basis of local conditions and needs is recognized, but such contractual arrangements should in all cases ensure (a) the policy of professional incentive for the physician, and (b) progressive development of the hospital departments involved, in order that increasingly improved services to patients may be rendered. Moreover, a physician shall not dispose of his professional attainments or services to any hospital, lay body, organization, group, or individual, by whatever name called, or however organized, under terms or conditions which permit exploitation of the patient, the hospital, or the physician.

"5. The chief of a hospital department may have access to financial information regarding his department.

"6. It is desirable that means should be provided at local, state and national levels for review of problems of individual hospital-physician relationship by organized medical and hospital groups."

The joint report consisted of 11 typewritten pages, from which the guiding principles enumerated above are excerpted. Although the statement was plainly worded and constructed so as to minimize the chance of misinterpretation, an erroneous story by the United Press did result and served to becloud an otherwise successful and enthusiastic meeting.

Nowhere in the entire report was there anything to advocate the lumping of all hospital expenses so patients would only have to pay one bill, as was incorrectly stated in the wire service story. This misleading news item set off a chain reaction that was heard across the country, but the UP failed to run a correction even when provided with a joint clarifying statement by Dr. Crosby and myself.

Edward J. McCormick, M.D., Toledo, Ohio.

ORGANIZATION SECTION

NEW A. M. A. TELEVISION FILMS

Four filmed television programs for presentation over local TV outlets will be ready for distribution by the American Medical Association on Oct. 1. The films will be made available to state and county medical societies without charge as an A. M. A. service. Designed to provide authentic medical information for the general public in an attractive package, the films are expertly produced and of exceptional quality. They offer local medical societies an excellent new public relations vehicle for use on television. TV rights on all four shows are the exclusive property of the American Medical Association. Any showing of the films on local stations must be under the auspices of the county or state medical society.

Two of the films, "Operation Herbert" and "A Citizen Participates," run 28 minutes, and a third, "Your Doctor," is a 15 minute film. The fourth program is a series of six five-minute films called "What to Do."

"Operation Herbert," starring stage, screen, and television actor Jackie Kelk, tells the story of a young biology instructor who undergoes an appendectomy. To prove a point with penny-pinching Aunt Agatha and to win the favor of his attractive nurse, Kelk uses homemade visual aids to show that medical care costs have not risen as high or as fast as the general cost of living.

"A Citizen Participates" is a documentary-type report on a small town that needs a physician. Citizen Bert Henderson, a local merchant, enlists the aid of a service club and initiates the campaign that makes his community attractive to a prospective doctor. Although this film is being distributed for nontheatrical showing by Young America Films, the A. M. A. has exclusive rights for TV showings.

"What to Do," a series of six five-minute features, answers some of the commonest home medical questions. Nancy Craig, ABC women's commentator, shows "what to do" in using a thermometer, applying artificial respiration, maintaining a medicine chest, and in emergency treatment of colds, abdominal pains, and headaches.

Fourth in the new A. M. A. TV film series is Louis de Rochemont's story of medical service in America, "Your Doctor." The 15 minute documentary spotlights medical student Edwin McGee and rural practitioner Dr. George Bond. The film is being released to television audiences for the first time.

In order to assure availability and avoid conflicting bookings, state and county medical societies are urged to arrange for the films well in advance of presentation. Prints may be secured from the A. M. A.'s TV Film Library, 535 North Dearborn Street, Chicago 10, Ill.

THE ST. LOUIS CLINICAL SESSION

Arrangements are being completed for the seventh annual Clinical Session of the American Medical Association Dec. 1-4 in St. Louis. This year's program has been designed to give the general practitioner an opportunity to see and hear the latest developments in medicine. Such topics as chest injuries, compression fractures of the vertebra, chronic pancreatitis, weed poisoning, and chronic arthritis—drugs and vaccine therapy, will be presented. Special features include fracture demonstrations; problems of delivery, with manikin demonstrations by leading obstetricians; traffic accidents, an exhibit symposium combining the experiences of physicians, the National Safety Council, and police departments; and diabetes, including exhibits and question-and-answer conferences in an adjoining room.

The Jefferson Hotel has been selected as the headquarters for House of Delegates sessions and reference committee meetings. All other features, the Scientific Exhibit, lectures, motion pictures, color television, and the Technical Exhibit, will be presented at the Kiel Auditorium. There will be more than 80 exhibits in the Scientific Exhibit. The Technical Exhibit will feature about 150 displays covering all types of office and medical practice needs. Plan now to attend this meeting.

NEW EXHIBITS ON ACCIDENTS AND IMMUNIZATION

Two new health education exhibits are now available from the A. M. A.'s Bureau of Exhibits. The first exhibit, "Home Accidents," shows pictorially the primary causes of accidents and their prevention in the various age groups, ranging from babies to teenagers and the aged. It points up the leading causes of death—burns, suffocation, falls, and poisons. Minimum space required for this exhibit is 10 by 6 feet. The other exhibit, on immunization, deals with several preventive agents used in fighting such diseases as smallpox, diphtheria, whooping cough, and tetanus. A question-and-answer box is included to take care of the most commonly asked questions. Primarily designed for small groups, this portable exhibit measures 44 inches by 4 feet. Both exhibits may be secured from the Bureau of Exhibits for showing at local meetings by state and county medical societies.

STATE MEDICAL JOURNAL CONFERENCE

The 1953 State Medical Journal Conference will be held Nov. 9 and 10 at American Medical Association headquarters. Sponsored by the Advisory Committee of the SJAB and approved by the Board of Trustees of the A. M. A., this meeting will be similar to the two day seminar held in 1951. Dr. L. Fernald Foster of Bay City, Mich., a member of the advisory committee, as chairman of the conference has arranged a program that will be of interest to both editors and business managers of the state medical publications, for whose benefit the conference has been scheduled. Topics to be presented include "The History of Pharmaceutical Advertising," "Printing Costs," "State Medical Journal Formats," and "Responsibilities of an Editor."

NEW PUBLIC RELATIONS MANUAL

A new American Medical Association publication, entitled "℞ PR," will be mailed to all Association members after Sept. 28. This prescription for medical public relations is in the form of a manual for physicians. The first half of the booklet is devoted to discussions of doctor-patient relationships; the second section takes up the business aspects of medical practice. The public relations ideas, suggestions and techniques contained in the manual constitute the combined thinking of 50 PR-minded practicing physicians from all parts of the United States. In the introduction it is stated that "every complaint of the public is a danger signal—a symptom of the public ill will, justified or unjustified, harbored against some physicians and some aspects of medical care." The booklet points out that "public relations is every physician's responsibility." The manual also will be made available to medical students, interns, and residents.

NEW SERIES OF RADIO TRANSCRIPTIONS

What medicine is doing to overcome the principal causes of death in the world today is the theme of a new series of radio transcriptions released by the American Medical Association Sept. 15. The 13-program series—"Medicine Fights the Killers"—covers the following subjects: coronary thrombosis, rheumatic heart disease, lung cancer, leukemia, hypertension, accidents, nephritis, premature births, tuberculosis, pneumonia, diabetes, suicide, and poliomyelitis. Prepared by the Bureau of Health Education, these transcriptions may be used by local radio stations under the auspices of state and county medical societies.

MEDICAL NEWS

CALIFORNIA

Plague Infection.—According to the U. S. Department of Health, Education, and Welfare a specimen obtained Aug. 13 in San Mateo County was found to be positive for plague. The specimen consisted of 25 fleas (Hystrichopsylla dippiei, Malaraeus telchinum, and Atyphloceras multidentatus) collected from the nest of a field mouse (Microtus californicus) about 2 miles south of the San Francisco city limits.

CONNECTICUT

Hospital News.—The Hartford Hospital's first guest speaker on its Saturday morning 11 o'clock series will be Dr. Sidney Farber, pathologist, Children's Medical Center, Boston, and director of research, Children's Cancer Research Foundation, who will discuss "Progress in Research in Lipid Metabolic and Related Disorders," Sept. 26.

GEORGIA

Eye Bank Donations.—The Ponce de Leon Eye, Ear, Nose and Throat Infirmary, Atlanta, which is affiliated with the national Eye Bank for Sight Restoration, is offering its services for those who wish to donate their eyes to the eye bank at time of death. Physicians may secure forms necessary for this service. All arrangements will be made by the infirmary after notification by the physician.

Personal.—Dr. Edward J. Smith, Hahira, was recently honored at a dinner given by the community in recognition of his 52 years of service.——Dr. William H. Tanner, Newnan, was recently the guest of honor at a community-wide surprise party given by the Rico Civic Club in honor of his 50 years of medical practice. A gold pen and pencil set was presented to Dr. Tanner.

ILLINOIS

Narcotic Violation.—Dr. Henry W. Bond, Galesburg, who pleaded not guilty in the U. S. District Court at Peoria to violation of USC Title 26, Section 2554, on July 29, was found guilty by Judge Leroy Adair, who suspended sentence and placed him on probation for five years.

Psychiatry Lectures in Winnetka.—The North Shore Health Resort, 225 Sheridan Road, Winnetka, invites all physicians to attend its fourth annual lecture series, which will have as its theme "Treatment in Psychiatry." The lectures will be given the first Wednesday of each month (second Wednesday in May) from October, 1953, to June, 1954. Opening the series Oct. 7 will be "The Problem of Psychiatric Referral" by Dr. Harold G. Wolff, professor of medicine, Cornell University Medical College, New York.

Chicago

Meeting of Chest Physicians.—A joint meeting of the Illinois Chapter of the American College of Chest Physicians and the eighth annual postgraduate course on diseases of the chest will be held at the Knickerbocker Hotel, Chicago, Oct. 1, at 6 p. m. The guest speaker will be Dr. Alvis E. Greer, Houston, Texas, president, American College of Chest Physicians. At 8:30 p. m. Dr. Albert H. Holland, medical director, Armour Laboratories, Chicago, will discuss "Techniques of Aerosolization." At 9 p. m. Dr. Coleman B. Rabin, New York, will serve as moderator for an x-ray symposium in which the collaborators will be Drs. Alvan L. Barach, New York, Benjamin M. Gasul and Jerome R. Head, Chicago, and Harold G. Trimble, Oakland, Calif. Physicians are cordially invited to attend.

IOWA

Dr. Hennessy Honored.—About 1,000 persons from Calmar and the surrounding area honored Dr. Felix A. Hennessy at a surprise reception at the St. Aloysius church auditorium in recognition of his 45 years of service. Dr. Hennessy, a past president of the Iowa State Medical Association, is on the staff of the Decorah Hospital and of St. Joseph's Hospital in New Hampton. He is a past president of the Iowa Tuberculosis and Health Association and presently is president of the Winneshiek County chapter. For many years he served as president of the Calmar school board.

KENTUCKY

Gifts to Rural Scholarship Fund.—The Louisville Courier-Journal and Louisville Times Foundation has contributed $800 to the Kentucky Rural Medical Scholarship Fund and has indicated that similar contributions will be forthcoming on an annual basis for three additional years. This revolving fund was established in 1946 by the Kentucky State Medical Association in cooperation with the University of Louisville School of Medicine.

Preventive Medicine Program.—The University of Louisville School of Medicine recently received from the W. K. Kellogg Foundation of Battle Creek, Mich., a grant of $141,000, to be used for a five year plan in the field of preventive medicine. Under the new teaching program, which will be initiated this fall, a group of students will be assigned to persons or families needing medical care and will follow the patients' progress. The program will be used in the departments of medicine, surgery, pediatrics, obstetrics and gynecology, psychiatry, and community health.

MASSACHUSETTS

France Honors Dr. Churchill.—By decree of the president of the French Republic, Dr. Edward D. Churchill, Boston, was granted the Cross of Knight of the Legion of Honor "as a token of appreciation for his remarkable achievements in the field of surgery and of gratitude for his outstanding contribution in fostering closer cooperation between the scientists of the two countries." The decoration was bestowed, July 14, by M. François Charles-Roux, consul general of France in Boston.

Dr. Feldberg to Give Dunham Lectures.—The faculty of Harvard Medical School, Boston, announces that the Edward K. Dunham lectures will be presented by Dr. Wilhelm Siegmund Feldberg, head of the physiology and pharmacology laboratory, National Institute for Medical Research, London. He will make the following presentations: Oct. 5, Physiology of the Autonomic Nervous System; Oct. 7, Chemical Transmission of Nerve Effects; and Oct. 9, Special Problems of Chemical Transmission of Nerve Effects. The lectures will be given at 5 p. m. in the Harvard Medical School, Amphitheatre, Building D. These annual lectures, which were established to "bind closer the bonds of fellowship and understanding between students and investigators in this and foreign countries," are "free and open to the faculty and students of the Harvard Medical School and College, and all other interested professional persons who may profit by them."

MICHIGAN

Hospital News.—Dr. Harold A. Ott has resigned as medical director of Florence Crittenton Hospital, Detroit, a position which he filled on a part-time basis, and will devote his entire time to private practice. On Oct. 1, Dr. Edward S. Zawadzki will assume the directorial position, in addition to his duties as pathologist and director of clinical laboratories.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Dr. Rector Retires from Cancer Control Program.—Dr. Frank L. Rector, Ann Arbor, has retired from active participation in the cancer control program after 23 years of service. He served as midwestern field representative of the American Cancer Society for 11 years, cancer consultant for the Michigan Department of Health for 5 years, and secretary of the Cancer Control Committee, Michigan State Medical Society for the past 7 years. Dr. Rector prepared the text of "The Story of Cancer for High Schools," recently published by the committee. He has spoken to more than 925 high school audiences and to an equal number of adult lay groups. In 1952 he received the first award of the Public Health Cancer Association of America for his contribution to cancer education and control, and in March, 1953, the Michigan State Medical Society presented him with a scroll of appreciation for his efforts in lay cancer education.

MINNESOTA

Dr. Laird Honored.—Dr. Arthur T. Laird, who retired from the Moose Lake State Hospital staff July 15, was honored by the hospital employees and their families at a picnic held July 7. Dr. Laird, who was formerly a member of the medical staff at Trudeau Sanatorium, Saranac Lake, N. Y., came to Nopeming Sanatorium as superintendent in 1911 and served in this capacity for 30 years. During World War I, he was chosen by the Rockefeller Foundation to work with the French government in demonstrating the most recent advances in the care of tuberculosis patients.

MISSISSIPPI

Fifty Year Club.—The following physicians recently became members of the 50 year club of the Mississippi State Medical Association: George M. Barnes, Belzoni; William W. McBryde, Ethel; George W. F. Rembert and John S. McIntosh, Jackson; John M. Wright, Hernando; James R. Hill, Corinth; and B. Lampton Crawford, Tylertown.

NEW JERSEY

Award for Residents and Interns.—The New Jersey Chapter of the American College of Surgeons announces that (1) a yearly prize of $100 will be given to the surgical resident in a New Jersey hospital who presents the best published paper on a surgical subject and (2) a yearly prize of $100 will be given to the intern in a New Jersey hospital who presents the best unpublished paper on a surgical subject. For information, contact Dr. Benjamin Daversa, 209 Passaic Ave., Spring Lake.

Workshop at Kessler Institute.—The Advisory Committee on Rehabilitation of the Medical Society of New Jersey will sponsor a workshop on employment of the physically handicapped at the Kessler Institute for Rehabilitation, West Orange, Oct. 2, to which physicians, nurses, therapists, social workers, and other rehabilitation personnel are invited. Dr. Henry H. Kessler, medical director of the institute, will make the presentation for medicine. Three panels representing special disability groups have been scheduled for the afternoon program.

Personal.—Dr. Clement M. Jones, Bayonne, was recently awarded the honorary degree of doctor of science by Lincoln University, Oxford, Pa.——Dr. Marcus W. Newcomb, Browns Mills, was guest of honor at a testimonial dinner in recognition of his 50 years as a practicing physician and 34 years as director of the Marcus W. Newcomb Hospital for Chest Diseases, New Lisbon.——Dr. John R. Pavia, East Orange, has been appointed medical director of Public Service Electric and Gas Company and Public Service Coordinated Transport. Dr. Pavia has been affiliated with these organizations in medical work since 1937.

NEW YORK

Cardiac Rehabilitation Program at West Point.—The Orange County Heart Association will present a program dealing with rehabilitation and employment problems at its annual meeting and dinner, Sept. 29, at the Hotel Thayer, West Point. Dr. Leonard J. Goldwater, professor of industrial hygiene, Columbia University College of Physicians and Surgeons, and founder of the Cardiac Work Classification Clinic, Bellevue Hospital, New York City, will be guest speaker. Physicians are invited.

New York City

Radiology Services Consolidated.—Dr. Marcus D. Kogel, city commissioner of hospitals, and Dr. Currier McEwen, dean of the New York University College of Medicine, announce the consolidation of the departments of diagnostic radiology and radiation therapy into a unified department of radiology at Bellevue Hospital Center. Dr. Maxwell H. Poppel, chairman, department of radiology, New York University College of Medicine, has been appointed director of this new service, and Dr. Sidney Rubenfeld, clinical professor of radiology at the college, has been named director of the new division of radiation therapy. Dr. Poppel, who will direct all radiological activities at Bellevue, University, and Gouverneur hospitals, all of which are affiliated with the New York University-Bellevue Medical Center, is also consulting radiologist to the U. S. Naval Hospital at St. Albans, Veterans Administration Hospital, New York, and St. Francis Hospital, Poughkeepsie. During his service as commander in the Naval Reserve during World War II, he was director of radiology, U. S. Naval Hospital, Chelsea, Mass. Dr. Rubenfeld, who served five years in World War II, is attending consultant in radiology at Veterans Administration Hospital, New York, director of the isotope service at Bellevue Hospital Center, and a member of the Oak Ridge board for study of heavy isotope sources.

Symposium on Diabetes.—The New York Diabetes Association will hold a symposium day on diabetes, Oct. 8, at the Memorial Center for Cancer and Allied Diseases, 410 E. 68th St. Presentations by physicians include:

Cyril N. H. Long, New Haven, Conn., Hormonal Control of Carbohydrate Metabolism.
William C. Stadie, Philadelphia, Action of Insulin.
Herman O. Mosenthal, New York, Insulin and Complications of Diabetes—Endogenous and Exogenous Insulin.
Franklin B. Peck, Indianapolis, Indications for the Use of Various Insulins.
David Hurwitz, Boston, Management of Diabetes During Pregnancy.
Lawrence E. Hinkle Jr., New York, Effects of Life Situations and Emotions on Management of Diabetes.
W. Ross McCarty, New York, Management of Surgical Infections in Diabetes with Special Reference to Streptokinase-Streptodornase.
Herbert Pollack, New York, Nutritional Management of Diabetes.

Discussants include Drs. John S. L. Browne, Montreal, Canada, Martin G. Goldner, Brooklyn, and Benjamin I. Ashe, William P. Given, and Elaine P. Ralli, New York. Physicians, medical students, and other professional personnel are invited. Advance registration is necessary.

OHIO

Hospital at Cambridge Closes.—Dr. George F. Swan, chief of staff, announces that, because of his recent illness, the Swan Hospital, Cambridge, has discontinued operation after 23 years of service. He and his brother, Dr. Reo M. Swan, who has been associated in the operation of the hospital, will continue in practice. Dr. George Swan is a former member of the council of the Ohio State Medical Association.

Plaque Dedicated to Physicians in Indian Wars.—As part of the Ohio sesquicentennial celebration, the Ohio State Medical Association and the Ohio Archaeological and Historical Society have erected a marker on the site of Fort St. Clair in honor of physicians who took part in the Indian wars. The marker lists the physicians' names and shows on a sketch the major events in the campaigns. Participating in the dedication ceremonies were Drs. Augustus L. Ross Jr., West Alexandria, president of the Preble County Medical Society; Merrill D. Prugh, Dayton, president-elect of the Ohio State Medical Association; Paul A. Davis, Akron, president of the Ohio State Medical Association; and Jonathan Forman, editor of the *Ohio State Medical Journal*.

OREGON

Society News.—At its annual meeting at Oregon Caves, the Southern Oregon Medical Society elected Drs. Robert W. Sleeter, Medford, president; John W. Bradshaw, Ashland, vice-president; and Earl L. Lawson, Medford, secretary-treasurer.

University News.—The University of Oregon Medical School, Portland, recently announced the following appointments: Drs. Harold Tivey, assistant professor of medicine; William W. Krippaehne, instructor in surgery; Sarah E. Stewart, instructor in pediatrics; Tyra T. Hutchens and James H. Lium, assistant professors of clinical pathology; Robert D. Koler, clinical associate in medicine; Ruth I. Kukko, instructor in medicine; and Jesse L. Ray, clinical instructor in obstetrics and gynecology. ——The University of Oregon, Portland, recently received grants, totaling $39,880, from the Atomic Energy Commission. Of this sum, $25,000 will be used for the continuation of a hematology research project under the direction of Drs. Edwin E. Osgood and Arthur J. Seaman, division of experimental medicine, and $4,100 for a radium research project being carried on by Dr. Frank B. Queen, department of pathology.

Personal.—Dr. Harold A. Press, Portland, formerly director of the medical program analysis branch of the Veterans Administration, has been appointed regional medical consultant of the National Foundation for Infantile Paralysis for 10 Pacific and western states. His office will be in San Francisco. ——At the annual meeting of the Mental Health Association of Oregon, honorary life membership was voted for Dr. Ferdinand H. Dammasch, Portland, sponsor of recent legislation to build a hospital for aged, mentally ill persons.——Dr. Marlowe H. Schaffner, Cottage Grove, has been appointed medical director of the Songa Mission Hospital located in the Belgian Congo, Africa, where he will supervise a 350 patient leper colony. Dr. Schaffner and his family will spend several months in Europe before going to the new post.——Dr. Rudolph E. Kleinsorge, Silverton, has been made president of the state board of higher education, of which he has been a member since 1941. Dr. Kleinsorge, a past president of the Marion County Medical Society, served on the Silverton school board for nine years.——Dr. William Horsfall, Coos Bay, was honored at the annual convention of the Oregon State Aerie of Eagles at Coos Bay. The entire convention was dedicated to him by the Coos Bay Aerie and a 50 year jewel was presented to him. Dr. Horsfall, the oldest member of the aerie, has been its physician since 1904.

UTAH

Symposium on Atomic Energy.—The University of Utah College of Medicine, Salt Lake City, will present a symposium on medical aspects of atomic energy, Oct. 7-9. The program includes discussion of medical effects of atomic weapons, civil defense considerations, and the clinical and research applications of radioactive elements. Speakers will be scientists from the atomic energy project and principal university research laboratories. For information regarding registration, contact the Office of the Division of Graduate and Postgraduate Medical Education, 175 E. 21st South, Salt Lake City.

VIRGINIA

Meeting on Crippled Children.—The annual Conference on Crippled Children will be held at the Medical College of Virginia, Richmond, Oct. 5-6, under the sponsorship of the Virginia Council on Health and Medical Care, at the request of the Nemours Foundation of Wilmington, Del. The theme of the conference is "Growth and Development of the Crippled Child." Dr. Samuel M. Wishik, professor of maternal and child health, University of Pittsburgh, will present medicine's responsibility, and Bess Goodykoontz, director of comparative education, Division of International Education, Department of Health, Education, and Welfare, Washington, D. C., will present education's responsibility. Physicians are invited. Information may be obtained from Edgar J. Fisher Jr., director, Virginia Council on Health and Medical Care, 102 E. Franklin St., Richmond 19.

Personal.—William T. Sanger, Ph.D., president of the Medical College of Virginia, Richmond, was recently elected president of the National Society for Crippled Children and Adults, Inc.——Dr. Frederick L. McDaniel, Richmond, for four years assistant to the commissioner of the state department of mental health and hospitals, has resigned to accept a position with the Central Inspection Board of the American Psychiatric Association. ——A portrait of Dr. William Tate Graham was presented to the Crippled Children's Hospital of Richmond by the staff of the hospital, which he has served as surgeon-in-chief since its founding.——The Medical College of Virginia, Richmond, at its 116th commencement bestowed honorary degrees on Dr. Jack Walter Witten, North Tazewell (Master of Humane Letters), Dr. Richard Henry Eanes, Washington, D. C. (Doctor of Laws), and Dr. Richard Hugh Wood, Atlanta (Doctor of Science).

WISCONSIN

State Medical Meeting in Milwaukee.—The annual meeting of the State Medical Society of Wisconsin will be held in the Milwaukee Auditorium Oct. 6-8 under the presidency of Dr. Joseph C. Griffith, Milwaukee. On Oct. 5 there will be a special luncheon for all delegates, councilors, officers, and invited guests, with Dr. Edward J. McCormick, Toledo, Ohio, President of the American Medical Association, as the principal speaker. Each morning, 9-10, teaching demonstrations will be presented in anatomy, obstetrics and gynecology, fractures, cerebral palsy, and gross pathology. Twenty out-of-state speakers will participate in the scientific sessions. On Tuesday, special emphasis programs will be given in the following subjects: Dr. John W. Pender, Rochester, Minn., will discuss "General Anesthesia for the Patient with Cardiac Disease," and Dr. William O. McQuiston, Chicago, "Anesthesia for Cardiac Surgery." Dr. David A. Boyd Jr., Rochester, Minn., will deliver the Rogers Memorial lecture on "Psychological Needs of the Medically and Surgically Ill Patient." Dr. Joseph C. Aub, Boston, will lecture on "The Relation of Hormones to Carcinoma," under the sponsorship of the Wisconsin division of the American Cancer Society. Dr. G. Edmund Haggart, Boston, will present "Management of Low Back and Sciatic Back Pain." Dr. William T. Green, Boston, will lecture on "Reconstructive Surgery in Poliomyelitis" unde [illegible] the National Foundation for Infantile [illegible] will also present "Early Treatment of Poliomyelitis" during the Tuesday afternoon scientific assembly, when Dr. Paul L. Shallenberger, Sayre, Pa., will discuss "Lesions of the Lower Colon," and Dr. Pender "Complications in Anesthesia Related to Cortisone Therapy." The Milwaukee Art Institute, which is presenting an art exhibit entitled "The Story of Medicine in Art," will hold a special reception for physicians and their wives at 5:30 p. m. at the Hotel Pfister, preceding the buffet dinner and special program at which Lejaren à Hiller, New York, photographer and illustrator, will be the featured speaker.

The Wednesday afternoon scientific assembly will consist of the following presentations:

Arterial Hypertension as Determined by the Success of Certain Medical or Surgical Procedures, Joseph H. Hafkenschiel Jr., Philadelphia.
Nonoperative Treatment of Stress Incontinence in Women, Lawrence R. Wharton, Baltimore.
Thoracic Trauma, William M. Tuttle, Detroit.
Newer Methods of Diagnosis and Therapy in Office Gynecology, Conrad G. Collins, New Orleans.

Other out-of-state speakers on the Wednesday program are Dr. Charles K. Friedberg, New York, who will lecture on "Electrolyte Disturbances of Heart Disease" and Brig. Gen. Elbert DeCoursey, director, Armed Forces Institute of Pathology, Washington, D. C., who will speak on "The Pathology of Hemorrhagic Fever." A program on obstetrics and gynecology will also be presented Wednesday morning. The annual dinner, dance, and floor show are scheduled for Wednesday evening.

On Thursday Dr. J. Barrett Brown, St. Louis, will conduct a round-table discussion on "Surgical Repair of Radiation Lesions, Including Those of Atomic Origin" and Dr. Oliver P. Kimball, Cleveland, will conduct one on "Epilepsy in Relation to Inheritance." Thursday's special interest programs include pediatrics, radiology, and surgery. The section on ophthalmology and otolaryngology will hold a luncheon meeting at the Hotel Shroeder. At 1:30 p. m. Dr. Hermann M. Burian, Iowa City, will present "Evaluation of Diagnostic Methods in the Examination of Neuromuscular Anomalies of the Eye." At 2:40 p. m. Dr. Oscar J. Becker, Chicago, will consider "The Septum in Relation to Rhinoplastic Surgery." The closing scientific assembly at the Hotel Shroeder, will consist of the following presentations:

Robert M. Janes, Toronto, Canada, Rounded Shadows in the Chest.
Traian Leucutia, Detroit, Newer Developments in Radiation and Chemotherapy for the Treatment of Cancer.
Milton J. E. Senn, New Haven, Conn., What the Family Physician Should Know About Emotional Problems of Children.

Dr. Janes will also give a lecture on "Breast Carcinoma."

Fire Hazards in Hospitals.—A lecture and demonstration on "Fire and Explosion Hazards in Hospitals and Their Control" will be conducted by Dr. George J. Thomas, professor of anesthesiology, University of Pittsburgh School of Medicine, at 3 p. m., Oct. 2, at Marquette University School of Medicine, 561 N. 15th St., Milwaukee. The program, which is open to all those interested, is sponsored by the Wisconsin Society of Anesthesiologists with the cooperation of Marquette University School of Medicine. Dr. Thomas has worked in close cooperation with the explosives division of the U. S. Bureau of Mines in Pittsburgh since 1938 in research on the prevention of fires and explosions with flammable anesthetic agents. For information, contact Dr. Richard Foregger, BLuemound 8-5848, Milwaukee.

GENERAL

Mine Workers to Build 10 Hospitals.—The United Mine Workers Welfare and Retirement Fund has announced plans to build 10 hospitals in Virginia, West Virginia, and Kentucky, with a total of about 1,000 beds. Construction has been started on the 200 bed unit in Beckley, W. Va., which will maintain a school of practical nursing.

Fulbright Awards Offered.—Twenty U. S. government awards (1954-1955) for university lecturing and 10 awards for advanced research under the Fulbright Act have been announced for Japan. Application forms may be obtained from the Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Ave., N.W., Washington 25, D. C. Applications must be submitted before Oct. 15.

Meeting of Clinical Society.—The annual meeting of the Gulf Coast Clinical Society will be held in Mobile, Ala., Oct. 15-16. Guest speakers include:

Carl A. L. Binger, New York, Psychotherapy of Everyday Practice.
Edgar A. Hines Jr., Rochester, Minn., Medical Aspects of Peripheral Vascular Diseases.
Robert Lich Jr., Louisville, Chronic Pyelonephritis.
Joseph H. Farrow, New York, Differential Diagnosis of Lumps in the Breast.
Henry T. Bahnson, Baltimore, Aortic Surgery.
Armand J. Quick, Milwaukee, The Hemorrhagic Diseases.

Drs. Tinsley R. Harrison and Champ Lyons, Birmingham, Ala., will participate in a clinical pathological conference.

National Foundation Fellowships.—The National Foundation for Infantile Paralysis announces a limited number of additional postdoctoral fellowships to candidates whose interests are research and teaching in medicine and the related sciences. The purpose is to increase the number of professional workers qualified to give leadership in the solution of basic and clinical research problems including those of poliomyelitis and other crippling diseases. The fellowships cover a period of from one to five years. Stipends range from $3,600 to $7,000 a year, with marital and dependency status considered in determining awards. Eligibility requirements include United States citizenship, sound health, and an M.D., Ph.D., or equivalent degree. Information may be obtained from: Division of Professional Education, National Foundation for Infantile Paralysis, 120 Broadway, New York 5.

Insurance Medical Directors Meet in New York.—The Association of Life Insurance Medical Directors will hold its annual meeting at the Hotel Statler, New York, Oct. 14-16 under the presidency of Dr. Earl C. Bonnett, New York, medical director of the Metropolitan Life Insurance Company. Wednesday morning there will be a panel discussion on "Systolic Heart Murmurs" by Drs. Henry B. Kirkland, Edson E. Getman, K. Jefferson Thomson, and Harry E. Ungerleider, New York. Friday morning a panel on "Accident and Health-Hospitalization Insurance—A Problem for Mutual Understanding" will be presented by Dr. Ralph M. Filson, Hartford, Conn., Mr. Ralph T. Heller, and Mr. Wendell A. Milliman. The association luncheon will be held Wednesday, and the annual reception and informal dinner are scheduled for Thursday evening.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

	Sept. 12, 1953		
Area	Paralytic Type	Total Cases Reported	Sept. 13, 1952 Total
New England States			
Maine	16	31	9
New Hampshire	..	9	4
Vermont	7	11	5
[illegible]	12	32	41
[illegible]	15	32	8
[illegible]	3	18	35
Middle Atlantic States			
New York	47	182	169
New Jersey	18	41	55
Pennsylvania	..	102	107
East North Central States			
Ohio	32	183	264
Indiana	..	85	107
Illinois	25	113	344
[illegible]	44	147	274
[illegible]	..	45	166
West North Central States			
Minnesota	46	192	405
Iowa	7	32	276
[illegible]	15	42	91
[illegible]	1	14	12
South Dakota	..	38	57
Nebraska	5	16	212
Kansas	4	32	181
South Atlantic States			
[illegible]	1	3	8
[illegible]	25	42	11
[illegible]	..	5	9
Virginia	14	45	37
[illegible]	13	30	49
[illegible]	11	31	36
[illegible]	3	11	12
Georgia	8	24	20
Florida	17	48	29
East South Central States			
Kentucky	6	17	162
[illegible]	3	24	43
[illegible]	14	23	19
[illegible]	2	20	28
West South Central States			
Arkansas	9	16	28
[illegible]	6	16	41
[illegible]	4	29	61
Texas	15	47	151
Mountain States			
Montana	2	14	21
Idaho	..	4	34
[illegible]	..	4	8
[illegible]	7	19	45
[illegible]	..	4	30
Arizona	..	8	13
Utah	..	5	16
Nevada	..	2	3
Pacific States			
Washington	..	28	60
Oregon	15	22	21
California	91	160	189
Territories and Possessions			
Alaska	..	3	..
Hawaii	..	..	2
Puerto Rico	2	2	2
Total	565	2,103	4,036

Industrial Health Conference.—The Upper Midwest Industrial Health Conference will be held at the Hotel Nicollet, Minneapolis, Oct. 2, under the sponsorship of the Minnesota State Medical Association, Minneapolis Chamber of Commerce, and Central States Society of Industrial Medicine and Surgery in cooperation with the Hennepin County Medical Society, Minnesota Academy of Occupational Medicine, and Minnesota Industrial Nurses Association. In the morning Dr. Orwood J. Campbell, Minneapolis, will serve as moderator for a panel discussion entitled "Health Service in Industry," and Dr. James R. Fox, Minneapolis, will moderate a panel discussion entitled "The Role of Psychology in Industry." The following presentations will be made during the afternoon session:

Injuries of the Hand, Albert T. Hays, Minneapolis.
Dermatology in Industry, Mr. Robert W. Plunkett.
Eye Injuries, Malcom A. McCannel, Minneapolis.

Dr. Leonard A. Scheele, Washington, D. C., Surgeon General, U. S. Public Health Service, will be the guest speaker at the dinner and evening session, 6:30-9 p. m.

Otolaryngologist Wanted in India.—The Vellore Christian Medical College in southern India, an international enterprise of the mission boards of Protestant church denominations in Canada, Britain, Australia, and the United States, is seeking a department head for its ENT staff. The college hospital has 550 beds, a dozen of which are allotted to the department of otolaryngology. The ENT outpatient department has a daily attendance of 50 to 60 patients. There are 175 students enrolled in the five medical classes. The program of teaching comprises 12 lectures to the fifth year students, sections for clinical work, rounds, and clinicopathological conferences. There is a large volume of clinical and operative work. The applicant should be a member of a Protestant church and a diplomate of the American Board of Otolaryngology, have three years of teaching experience, and be willing to serve for at least three years on a very modest salary. Details may be obtained from Miss Sarah Scudder Lyon, secretary, Vellore Christian Medical College Board, 156 Fifth Ave., New York 10.

Meeting on Surgery of Trauma.—The American Association for the Surgery of Trauma will hold its annual session at the Drake Hotel, Chicago, Oct. 1-3. Dr. Martin C. Lindem, Salt Lake City, will deliver the presidential address Friday morning. Dr. Paul R. Hawley, Chicago, will be toastmaster at the banquet, 8 p. m., where Frank G. Dickinson, Ph.D., director, A. M. A. Bureau of Medical Economic Research, will speak on "Pension Plans for Physicians." Ladies and other guests are invited. A film on "Transportation of the Injured Within the Hospital" will be presented by invitation by Dr. David R. Limbach, Flint, Mich., Friday, 8:30 a. m. Films on "The Principles of the Reduction of Fractures" and "Fractures of the Humerus," shown Saturday, 8:15 a. m., through the courtesy of the chief medical director, Veterans Administration, will be discussed by Dr. William A. Larmon, Chicago. The Edward D. Churchill lecture will be delivered Friday afternoon under the sponsorship of the Excelsior Club by Dr. Carl A. Moyer, St. Louis. The sessions will end Saturday morning with "Narrative Reports on the Management of Mass Civilian Casualties (The Story of Three Hurricanes)" by Drs. George J. Curry, Flint, Mich., George R. Dunlop, Worcester, Mass., and Hannibal L. Jaworski, Waco, Texas.

Medical Research Fellowships.—The National Research Council is accepting applications for postdoctoral research fellowships for 1954-1955. These awards, designed to offer research experience for promising individuals who look forward to investigative careers, do not provide practical experience in the clinical field. Ordinarily fellowships are not granted to persons over age 35. The following programs are announced:

1. Fellowships in cancer research, awarded by the American Cancer Society on recommendation of the committee on growth of the division of medical sciences, are available for study in all branches of the biological, chemical, and physical sciences and of clinical investigation applicable to the study of growth, typical or malignant. Citizens of the United States are eligible.

2. British-American exchange fellowships in cancer research, awarded by the American Cancer Society on recommendation by the committee on growth, are offered to citizens of the United States for advanced study in Great Britain in specialized fields pertaining to the problem of cancer. Similar fellowships are awarded by the British Empire Cancer campaign to British scientists for research in the United States.

3. Fellowships in the medical sciences, supported by the Rockefeller Foundation and the Lilly Research Laboratories, are administered by the medical fellowship board of the division. Fellows are expected to devote themselves to research in the basic medical sciences. The Rockefeller fellowships are open to citizens of the United States and Canada; the Lilly fellowships only to citizens of the United States.

4. Fellowships in tuberculosis, administered by the medical fellowship board under a grant from the National Tuberculosis Association and designed to promote the development of investigators in fields related to tuberculosis, are open to citizens of the United States, graduates of American schools.

5. Fellowships in radiological research are administered by the division's committee on radiology for the James Picker Foundation. Appointments are not limited to citizens of the United States.

Applications for 1954-1955 under any of these programs must be postmarked on or before Dec. 10. Fellowships are awarded in the late winter or early spring. Details may be obtained from the Fellowship Office, National Research Council, 2101 Constitution Ave., N.W., Washington 25, D. C.

Meeting of Vermont and New Hampshire Societies.—The fourth annual combined meeting of the Vermont State Medical Society, New Hampshire Medical Society, and the woman's auxiliaries will convene at Equinox House, Manchester, Vt., Oct. 4-6. Dr. Paul K. French, Burlington, Vt., is president of the Vermont society, and Dr. Joseph N. Friborg, Manchester, N. H., of the New Hampshire society. Preceding the official sessions, the golf tournament will be held at Equinox Links on Saturday, and the sports dinner on Sunday. All physicians are invited to attend the scientific session of the New Hampshire Heart Association in the Garden House at 3 p. m. Sunday. Out-of-state speakers will present the following papers on Monday:

Henry L. Bockus, Philadelphia, Post Cholecystectomy Syndrome. Diseases of the Gastrointestinal System.
Edward A. Edwards, Boston, Varieties of Digital Ischemia and Their Management.
Charles P. Emerson Jr., Boston, Recent Advances in Transfusion Therapy.

A Dutch treat cocktail party will be held in the Garden House at 6:30 p. m., preceding the banquet for which Dr. Howard J. Farmer, St. Johnsbury, Vt., will act as toastmaster. Major General Ernest N. Harmon, USA, Ret., Northfield, Vt., will speak on "Our Position of World Leadership." Sectional meetings will be held on Tuesday. Dr. Ruth Fox, New York, will participate in a panel discussion which will follow her presentation on "Basic Concepts in the Interpretation of Alcoholism as a Medical Condition." The section on anesthesiology will have a panel discussion on "Oxygen Want"; the section on ear, eye, nose and throat, a round-table conference on "Treatment of Complications of Ocular Surgery"; and the section on public health, a round-table discussion on "Present Day Problems in Public Health." Dr. Frederick W. Goodrich Jr., New London, Conn., will discuss "Experiences with 'Natural Childbirth'" before the section on obstetrics and gynecology. The section on internal medicine will have as guest speaker Dr. Joseph F. Ross, Boston, who will present "Immunohematologic Diseases."

CORRECTION

Blood Alcohol Concentration.—In a medicolegal abstract in The Journal, Aug. 1, 1953, page 1368, a technologist was quoted as testifying that a blood alcohol concentration of 0.28% means 2,800 mg. of alcohol per 100 cc. of blood. The statement quoted in the abstract appeared in the reported opinion of the Supreme Court of Colorado. Obviously what the technologist should have said is that 0.28% is equivalent to 280 mg. per 100 cc., or 2,800 mg. per 1,000 cc.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Clinical Meeting, St. Louis, Dec 1-4.
1954 Annual Meeting, San Francisco, June 21-25.
1954 Clinical Meeting, Miami, Florida, Nov. 30-Dec. 3.
1955 Annual Meeting, Atlantic City, N. J., June 6-10.
1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Sept. 30-Oct. 2. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago 10, Director.

American Academy for Cerebral Palsy, Western Hills Hotel, Fort Worth, Texas, Oct. 30-31. Dr. Harry E. Barnett, 116 S. Michigan Blvd., Chicago 3, Secretary.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 12-16. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

American Academy of Pediatrics, Municipal Auditorium, Miami, Fla., Oct. 6-9. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Secretary.

American Academy of Tropical Medicine, Brown Hotel, Louisville, Ky., Nov. 12-14. Dr. E. Harold Hinman, University of Puerto Rico, School of Medicine, San Juan 22, P. R., Secretary.

American Association of Blood Banks, LaSalle Hotel, Chicago, Oct. 17-20. Miss Marjorie Saunders, 3500 Gaston Ave., Dallas 4, Texas, Secretary.

American Association of Medical Clinics, Congress Hotel, Chicago, Oct. 9-11. Dr. Edwin P. Jordan, P. O. Box 114, Charlottesville, Va., Executive Director.

American Association of Medical Record Librarians, Palace Hotel, San Francisco, Oct. 5.9. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Secretary.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 1-3. Dr. James K. Stack, 700 North Michigan Blvd., Chicago, Secretary.

American Cancer Society, New York, Nov. 2-6. Dr. Charles S. Cameron, 47 Beaver St., New York 4, Medical Director.

American Clinical and Climatological Association, The Homestead, Hot Springs, Va., Nov. 2-4. Dr. Marshall N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Cardiology, Hotel Statler, Cleveland, Ohio, Nov. 6-7. Dr. Philip Reichert, 480 Park Ave., New York 22, Secretary.

American College of Surgeons, Conrad Hilton Hotel, Chicago, Oct. 5-9. Dr. Michael L. Mason, 40 East Erie St., Chicago, Secretary.

American Dental Association, Cleveland, Sept. 28-Oct. 1. Dr. Harold Hillenbrand, 222 E. Superior St., Chicago 11, General Secretary.

American Fracture Association, Mission Inn, Riverside, Calif., Oct. 12-15. Dr. H. W. Wellmerling, 120 S. LaSalle St., Chicago 3, Secretary.

American Public Health Association, Hotel New Yorker and Hotel Statler, New York, Nov. 9-13. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Roentgen Ray Society, Netherland Plaza, Cincinnati, Sept. 29-Oct. 2. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

American School Health Association, Hotel New Yorker, New York, Nov. 9-13. Dr. A. O. DeWeese, 515 East Main St., Kent, Ohio, Secretary.

American Society of Anesthesiologists, Olympic Hotel, Seattle, Oct. 6-9. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago, Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicago, Oct. 12-16. Dr. Clyde G. Culbertson, 1040 W. Michigan St., Indianapolis, Secretary.

American Society for the Study of Arteriosclerosis, Hotel Knickerbocker, Chicago, Nov. 1-2. Dr. O. J. Pollak, P. O. Box 228, Dover, Del., Secretary.

American Society of Tropical Medicine and Hygiene, Brown Hotel, Louisville, Ky., Nov. 12-14. Dr. John E. Larsh Jr., University of North Carolina, School of Public Health, Chapel Hill, N. C., Secretary.

Association of American Medical Colleges, Hotel Claridge, Atlantic City, N. J., Oct. 26-28. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of Life Insurance Medical Directors of America, Hotel Statler, New York, Oct. 14-16. Dr. Henry B. Kirkland, P. O. Box 594, Newark 1, N. J., Secretary.

Association of Medical Illustrators, Sheraton Hotel, Baltimore, Oct. 5-7. Miss Evelyn J. Erickson, 1512 St. Antoine St., Detroit 26, Secretary.

Association of Military Surgeons of the United States, Hotel Statler, Washington, D. C., Nov. 8-11. Dr. R. R. Sayers, Armed Forces Institute of Pathology, Washington 25, D. C., Secretary.

Association of State and Territorial Health Offcers, Washington Hotel, Washington, D. C., Nov. 4-7. Dr. John D. Porterfield, 306 Ohio Depts. Bldg., Columbus 15, Ohio, Secretary.

Central Association of Obstetricians and Gynecologists, The Shamrock, Houston, Texas, Nov. 5-7. Dr. Harold L. Gainey, Suite 602, 116 South Michigan Ave., Chicago 3, Secretary.

Central Neuropsychiatric Association, Claypool Hotel, Indianapolis, Oct. 15-17. Dr. Hamilton Ford, 112 North Blvd., Galveston, Texas, Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 12-16. Dr. Harry P. Smith, 203 N. Wabash Ave., Chicago 1, Secretary.

Colorado State Medical Society, Shirley-Savoy Hotel, Denver, Sept. 29-Oct. 2. Mr. Harvey T. Stethman, 835 Republic Bldg., Denver 2, Executive Secretary.

Constantinian Society, Battery Park Hotel, Asheville, N. C., Oct. 18-21. Dr. C. F. Shook, Medical Director, Owens-Illinois Glass Company, Toledo 1, Ohio, Secretary.

Delaware, Medical Society of, Hotel du Pont, Wilmington, Oct. 12-14 Dr. Andrew M. Gehret, 822 North American Bldg., Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Washington, Oct. 5-7. Mr. Theodore Wiprud, 1718 M St. N.W., Washington 6, Secretary.

Gulf Coast Clinical Society, Admiral Semmes Hotel, Mobile, Ala., Oct. 15-16. Dr. William J. Atkinson Jr., 1217 Government St., Mobile 20, Ala., Secretary.

Gulf Coast Conference on Industrial Health, Shamrock Hotel, Houston, Tex., Oct. 1-3. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Tex., Co-Chairman.

Indiana State Medical Association, French Lick, Oct. 19-21. Mr. James A. Waggener, 23 E. Ohio St., Indianapolis 4, Executive Secretary.

Interstate Post Graduate Medical Association of North America, Palmer House, Chicago, Nov. 2-5. Dr. E. R. Schmidt, 1300 University Ave., Madison 5, Wisconsin, Secretary.

Inter-Society Cytology Council, Philadelphia, Nov. 19-20. Dr. Paul F. Fletcher, 634 North Grand Blvd., St. Louis 3, Secretary.

Kansas City Southwest Clinical Society, Kansas City, Mo., Sept. 28-Oct. 1. Dr. W. H. Algie, 825 North 7th Street, Kansas City, Kans., Secretary.

Midwestern Section of American Federation for Clinical Research, Congress Hotel, Chicago, Oct. 29. Dr. Robert J. Glaser, 600 S. Kingshighway Blvd., St. Louis 10, Secretary.

National Association for Mental Health, New York, Nov. 17-19. Dr. George S. Stevenson, 1790 Broadway, New York 19, Medical Director.

National Gastroenterological Association, Hotel Biltmore, Los Angeles, Oct. 12-17. Dr. A. Xerxes Rossien, 1819 Broadway, New York 23, Secretary.

National Proctologic Association, Congress Hotel, Chicago, Oct. 15-17. Dr. George E. Mueller, 59 East Madison St., Chicago 2, Secretary.

National Society for Crippled Children and Adults, Palmer House, Chicago, Nov. 12-14. Mr. Lawrence J. Linck, 11 South LaSalle St., Chicago 3, Secretary.

New England Obstetrical and Gynecological Society, Hotel Somerset, Boston, Oct. 28. Dr. Carmi R. Alden, 270 Commonwealth Ave., Boston, Secretary.

New Hampshire Medical Society, Equinox House, Manchester, Vt., Oct. 4-6. Dr. Deering G. Smith, 44 Chester St., Nashua, Secretary.

North Pacific Surgical Association, Victoria, B. C., Nov. 20-21. Dr. John A. Duncan, 509 Olive Way, Seattle, Secretary.

Oklahoma City Clinical Society, Oklahoma City, Oct. 26-29. Miss Alma F. O'Donnell, 512 Medical Arts Bldg., Oklahoma City 2, Executive Secretary.

Omaha Mid-West Clinical Society, Hotel Paxton, Omaha, Oct. 26-30. Miss Irene Rau, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Oregon State Medical Society, Heathman Hotel, Portland, Oct. 14-17. Dr. Charles E. Littlehales, 833 S.W. Eleventh Ave., Portland 5, Secretary.

Regional Meetings, American College of Physicians:

- Western New York, Syracuse, Oct. 9. Dr. E. C. Reifenstein, 109 South Warren St., Syracuse 2, Governor.
- Ohio, Dayton, Oct. 9. Dr. Charles A. Doan, Ohio State University College of Medicine, Columbus 10, Governor.
- Montana-Wyoming, Missoula, Mont., Oct. 9-10. Dr. Harold W. Gregg, 127 West Park Street, Butte, Mont., Governor.
- Nw England—Conn., Maine, Mass., N. H., R. I., Vt.—Hartford, Conn., Oct. 28. Dr. John C. Leonard, 80 Seymour St., Hartford 15, Conn., Chairman.
- New Jersey, Trenton, Nov. 4. Dr. Edward C. Klein Jr., 73 Lincoln Park, Newark 2, Governor.
- Southeastern—Cuba, Alabama, Florida, Georgia, South Carolina—St. Simons, Sea Island, Ga., Oct. 16-17. Dr. Carter Smith, 384 Peachtree St. N.E., Atlanta 3, Ga., Chairman.

Regional Meetings, American Rheumatism Association:

- Ohio and Western Pennsylvania, Mayflower Hotel, Akron, Ohio, Nov. 11. Dr. Roger Q. Davis, 1405 Goodyear Blvd., Akron 5, Ohio, Chairman.

South Central Branch, American Urological Association, Kansas City, Mo., Sept. 20-23. Dr. Rex E. Van Duzen, 721 Medical Arts Bldg., Dallas, Texas, Chairman.

Southern Medical Association, Municipal Auditorium, Atlanta, Ga., Oct. 26-29. Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham 3, Ala., Secretary.

Southwestern Medical Association, El Conquistador Hotel, Tucson, Ariz., Oct. 29-31. Dr. C. C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

Southwestern Surgical Congress, Hotel Utah, Salt Lake City, Sept. 21-23. Dr. C. R. Rountree, 1227 Classen St., Oklahoma City 3, Secretary.

Tennessee Valley Medical Assembly, Read House Hotel, Chattanooga, Sept. 28-29. Dr. William G. Stephenson, 612 Medical Arts Bldg., Chattanooga 3, President.

Vermont State Medical Society, Equinox House, Manchester, Oct. 4-6. Dr. James P. Hammond, 542 Main St., Bennington, Secretary.

Virginia, Medical Society of, Hotel Roanoke, Roanoke, Oct. 18-21. Mr. Robert I. Howard, 1105 W. Franklin St., Richmond 20, Executive Secretary.

Western Orthopedic Association, Sun Valley, Idaho, Oct. 5-8. Dr. Forrest L. Flashman, 1301 Spring St., Seattle 4, Secretary.

Wisconsin, State Medical Society of, Hotel Schroeder, Milwaukee, Oct. 5-8. Mr. Charles H. Crownhart, 709 East Gorham St., Madison 3, Secretary.

FOREIGN

Association of Surgeons of Great Britain and Ireland, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

Canadian Medical Association, Vancouver, B. C., Canada, June 18-22, 1954. Dr. T. C. Routley, 135 St. Clair Ave. W., Toronto 5, Ont., Canada, General Secretary.

Congress of International Anesthesia Research Society, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

International Cancer Congress, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

International Conference on Thrombosis and Embolism, Basle, Switzerland, July 15-19, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

International Congress on Group Psychotherapy, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

International Congress of Hydroclimatism and Thalassotherapy, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni Venac 1, Belgrade, Yugoslavia, Secretary General.

International Congress of International College of Surgeons, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress on Mental Health, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

International Congress on Obstetrics and Gynecology, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

International Congress of Orthopedic Surgery and Traumatology, Berne, Switzerland, Aug. 30-Sept. 3, 1954. For information write: Professor M. Dubois, Isle-Hospital, Berne, Switzerland.

International Congress of Paediatrics, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

International Congress of Psychology, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

International Congress for Psychotherapy, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

International Gerontological Congress, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

International Leprosy Congress, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

International Office of Documentation of Military Medicine, Rome, Italy, Oct. 14-18. Colonel Medecin Prof. A. Campana, Office of the Ministero della Difesa-Esercito, Rome, Italy, Secretary.

Journees Medicales, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geofroix, Colombes (Seine) France.

Latin American *Congress of Obstetrics and Gynecology, Buenos Aires,* Argentina, Oct. 26-31.

Latin American Congress of Otorhinolaryngology, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro, Medico, Caracas, Venezuela, Secretary-General.

Pacific Science Congress, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, Mexico, D.F., Mexico, Feb. 28-March 4, 1954.

Pan American Medical Association, International Medical Cruise Congress, S. S. Nieuw Amsterdam, Jan. 6-22, 1954. Dr. Joseph J. Eller, 745 Fifth Avenue, New York 22, N. Y., U. S. A., Executive Director.

Pan American Medical Women's Alliance, Beekman Towers Hotel, New York, N. Y., Sept. 24-Oct. 1. Dr. Ina March, 140 Linwood Ave., Buffalo, N. Y., U. S. A., Registration Chairman.

Persian Gulf Medical Society, Dhahran, Saudi Arabia, Dec. 7-8. Dr. N. J. Conan Jr., Department of Internal Medicine, Arabian American Oil Company, Dhahran, Saudi Arabia, Secretary.

Regional Meeting, American College of Physicians, San Juan, Puerto Rico, Oct. 15-17. Dr. R. Rodriquez-Molina, Veterans Administration Center, San Juan, Puerto Rico, Governor.

Sectional Meeting, American College of Surgeons, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

World Federation of Occupational Therapists, Edinburgh, Scotland, August 17, 1954.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* All centers where there are five or more candidates. Sept. 8-10 (Part I only). Candidates may file applications at any time, but the National Board must receive them at least six weeks before the date of the examination they wish to take. Exec. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Written.* Various Centers, July 16, 1954. Sec., Dr. Curtiss B. Hickox, 80 Seymour St., Hartford 15.

American Board of Dermatology and Syphilology: All candidates must now pass a written examination. *Oral.* Philadelphia, Oct. 16-18. To be eligible, candidate must complete 36 months of training before Oct. 1. Final date for filing applications was May 1. Exec. Sec., Miss Janet Newkirk, 66 East 66th St., New York 21.

American Board of Internal Medicine: *Oral.* San Francisco, Sept. 30-Oct. 2, Chicago, Nov. 30-Dec. 2. The closing date for acceptance of applications for the San Francisco and Chicago oral examination was April 1. *Written.* October 19. The closing date for acceptance of applications was May 1. Exec. Sec.-Treas., Dr. William A. Werrell, 1 West Main St., Madison 3.

American Board of Neurological Surgery: *Oral.* New Haven, October. Final date for filing application was July 1. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, Kingshighway and Euclid Ave., St. Louis.

American Board of Neurology and Psychiatry: *Psychiatry and Neurology.* Dec. 14-15. Applications no longer being accepted. Chicago, April 29-30. Final date for filing application is Feb. 1. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Obstetrics and Gynecology: *Written.* Various cities of the United States and Canada, Feb. 5. Application for examination or re-examination, as well as requests for resubmission of case reports, must be made prior to October 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: Chicago, Oct. 5-9. *Written.* Various Centers, January 1954. Final date for filing applications was July 1. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

American Board of Orthopaedic Surgery: *Part II.* Chicago, Jan. 20-22. Final date for filing application was August 15. Final date for filing application for Part I is Nov. 30. Sec., Dr. Harold A. Sofield, 122 S. Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 5-9. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

American Board of Pathology: *Written. Pathologic Anatomy and Clinical Pathology.* Chicago, Oct. 8-10. Sec., Dr. William B. Wartman, 303 E. Chicago Ave., Chicago.

American Board of Pediatrics: *Oral.* Miami, Oct. 9-11; Indianapolis, Dec. 4-6. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Plastic Surgery: *Entire Examination.* San Diego, Oct. 29-31. Final date for receipt of case reports was June 1. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Proctology: *Part II. Oral and Written. Anorectal Surgery and Proctology.* Philadelphia, Sept. 19. Sec., Dr. Louis A. Buie, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: *Oral. Radiology, Roentgenology, Diagnostic Roentgenology and Therapeutic Radiology.* Chicago, Dec. 6-11. Final date for filing application was July 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Surgery: *Part I.* Oct. 28, 1953. March 31, 1954 and Oct. 27, 1954. *Part II.* New York City, Oct. 12-13; Chicago, Nov. 9-10; St. Louis, Dec. 14-15; Los Angeles, Jan. 11-12, 1954; Galveston, Jan. 15-16; Washington, Feb. 8-9; Cincinnati, March 8-9; New Orleans, April 12-13; Philadelphia, May 10-11; Boston, June 14-15. Sec., Dr. John B. Flick, 225 S. 15th St., Philadelphia 2.

Board of Thoracic Surgery: *Written.* Various centers throughout the country, September 11. Final date for filing application was July 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

DEATHS

Harvey, Samuel Clark ⊕ New Haven, Conn.; born in Washington, Conn., Feb. 12, 1886; Yale University School of Medicine, New Haven, 1911; became an Alonzo Clark fellow in pathology and instructor in pathology at Columbia University in New York; also served for one year as assistant resident physician in the Loomis Sanatorium in New York; from 1914 to 1917 was house officer in surgery and assistant resident in surgery at the Peter Bent Brigham Hospital in Boston and Arthur Tracy Cabot fellow in surgery at Harvard University in Boston; during World War I joined the medical corps of the U. S. Army and served in France as a major; on release from the armed forces in 1919, was made resident surgeon in the New Haven Hospital and instructor in surgery at his alma mater; the following year was promoted to assistant professor of surgery and in 1921 was named an associate professor; three years later was made William H. Carmalt professor of surgery, the chair he held until his appointment in 1947 as first United States and Yale professor of surgery in oncology; in August, 1952, retired, after 33 years on the faculty of Yale, with the title of William H. Carmalt professor emeritus of surgery; he was honored by 21 surgeons over the nation in 1951 when a portrait of him was presented to Yale, and a fund created in his name for partial support of a surgical assistant resident each year; during World War II served as consultant to the U. S. Office of Scientific Research and Development; as a member of the research organization's committee on medical research on burns, was instrumental in the development of the pyruvic acid method of treating burns; member of the founders group of the American Board of Surgery; member of the House of Delegates of the American Medical Association 1934-1935; helped formulate the policies of both the Connecticut State Cancer Society and the Connecticut State Medical Society, which he served as president; served as president of the American Surgical Association and Association of the Yale Alumni in Medicine; member of the Society of Clinical Surgery, Society of Neurological Surgeons, Sigma Xi, New England Surgical Society, and the American Association for Thoracic Surgery; fellow of the American College of Surgeons; in May, 1950, was awarded the annual medal of the American Cancer Society; chief surgeon in the Grace New Haven Community Hospital and Dispensary, where he was a member of the doctors' advisory committee; consulting surgeon for the Connecticut Tuberculosis Commission; in 1931 Western Reserve University of Cleveland conferred on him the honorary degree of doctor of science; died suddenly, Aug. 23, aged 67.

Gibby, Herbert B. ⊕ Wilkes-Barre, Pa.; born in Princeton, N. J., Sept. 12, 1871; University of Pennsylvania Department of Medicine, Philadelphia, 1895; an Associate Fellow of the American Medical Association and member of its House of Delegates from 1914 to 1921, in 1934, 1935, 1938, and 1939; past president of the Luzerne County Medical Society and the Lehigh Valley Medical Association; fellow of the American College of Surgeons; affiliated with Wilkes-Barre General Hospital, where he founded the tumor clinic and was on the surgical staff; on the staffs of the Nesbitt Memorial Hospital in Kingston and the Mercy Hospital; for a term president of the Wilkes-Barre Kiwanis Club; died at his summer home in Pocono Lake Preserve Aug. 7, aged 81, of heart failure.

Gordon, Donald ⊕ New York City; born in 1879; Columbia University College of Physicians and Surgeons, New York, 1906; formerly on the faculty of his alma mater; member of the American Association for the Surgery of Trauma; fellow of the American College of Surgeons; served in France during World War I; consulting surgeon at Flushing (N. Y.) Hospital and Dispensary and Tuxedo Memorial Hospital in Tuxedo Park; consulting surgeon, traumatic surgery, Beekman-Downtown Hospital; consulting surgeon at the Veterans Administration Regional Office, New York department of prosthetics since 1949; died in Buffalo (N. Y.) General Hospital Aug. 14, aged 73, of a head injury received when struck by an automobile, and terminal pneumonia.

Dudgeon, Howard Rush ⊕ Waco, Texas; born in Chamois, Mo., Nov. 21, 1873; University of Texas School of Medicine, Galveston, 1899; member of the House of Delegates of the American Medical Association from 1939 to 1941, in 1943, 1945, and 1949; past president of the Texas State Medical Association; a charter member and founder of the Texas Surgical Society; past president of the McLennan County and Galveston County Medical societies and of the Central Texas Medical Society; at one time on the faculty of his alma mater, for many years member and chairman of the city school board; served during World War I; affiliated with Providence and Hillcrest Memorial hospitals; died July 31, aged 79, of coronary occlusion.

Strickler, Cyrus Warren Sr. ⊕ Atlanta, Ga.; Atlanta Medical College, 1897; professor emeritus of clinical medicine at his alma mater, now known as the Emory University School of Medicine; specialist certified by the American Board of Internal Medicine; member of the Endocrine Society; fellow of the American College of Physicians; served during World War I; affiliated with St. Joseph's Infirmary, Crawford W. Long Memorial Hospital, Piedmont Hospital, Grady Memorial Hospital, and the Emory University Hospital, where he died July 23, aged 79, of pulmonary emphysema and uremia.

Baily, Howard Houghton ⊕ Colonel, U. S. Army, San Antonio, Texas; University of Virginia Department of Medicine, Charlottesville, 1897; fellow of the American College of Surgeons; member of the Association of Military Surgeons of the United States; veteran of the Spanish-American War and World War I; entered the medical corps of the U. S. Army in 1904; rose through the various ranks to that of colonel in July, 1930; retired March 31, 1932, at his own request; died in Brooke Army Hospital, Fort Sam Houston, July 23, aged 79, of bilateral bronchopneumonia and arteriosclerosis.

Buckley, Charles Frederick, Edgewater, N. J.; Columbia University College of Physicians and Surgeons, New York, 1898; since 1914 police surgeon, fire department surgeon, and medical inspector of the schools of Edgewater; plant physician for the Aluminum Corporation of America, Corn Products Refining Company, Public Service Coordinated Transport, the Electric Ferries, Valvoline Oil Company, Cooper Dye Works, and various other industries in and around Edgewater; for many years on the staff of the Methodist Episcopal Hospital in Brooklyn; died Aug. 7, aged 80.

Harvey, Clifford Dawes ⊕ Brookline, Mass.; Hahnemann Medical College and Hospital of Philadelphia, 1910; formerly associate professor of surgery at Boston University School of Medicine; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons; affiliated with Massachusetts Memorial Hospitals in Boston, Leonard Morse Hospital in Natick, Westboro (Mass.) State Hospital, Morrison Hospital, Whitefield, N. H., and Huggins Hospital in Wolfeboro, N. H.; died in Boston April 22, aged 73.

Albrecht, Mordecai, New York City; Deutsche Universität Medizinische Fakultät, Prague, Czechoslovakia, 1934; for many years practiced in Charleston, W. Va.; died in Roosevelt Hospital April 19, aged 55, of acute myocardial infarction.

Behrens, Alvin ⊕ Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1929; member of the American Academy of Ophthalmology and Otolaryngology;

⊕ Indicates Member of the American Medical Association.

specialist certified by the American Board of Ophthalmology; affiliated with Brooklyn Eye and Ear Hospital; died Aug. 3, aged 48, of multiple myeloma.

Blackwood, James Magee ⊕ New Castle, Pa.; Jefferson Medical College of Philadelphia, 1902; specialist certified by the American Board of Ophthalmology; fellow of the American College of Surgeons; served during World War I; affiliated with Jameson Memorial Hospital and the New Castle Hospital; died June 25, aged 76, of carcinoma of the liver.

Broadwin, Isra Tobias ⊕ New York City; University and Bellevue Hospital Medical College, New York, 1917; member of the American Psychoanalytic Association, American Psychiatric Association, and the American Orthopsychiatric Association; served as psychiatrist in chief of the Jewish Board of Guardians; affiliated with Montefiore, Bellevue, Mount Sinai, Hillside, and Lebanon hospitals; died in London, England, Aug. 5, aged 60, while attending the International Psycho-Analytical Congress.

Cogswell, George Proctor ⊕ Cambridge, Mass.; Harvard Medical School, Boston, 1893; on the staff of the Mount Auburn Hospital; died July 14, aged 86, of coronary thrombosis.

Coy, Warren Deweese ⊕ Youngstown, Ohio; Eclectic Medical College, Cincinnati, 1897; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; fellow of the American College of Surgeons; past president of the Mahoning County Medical Society; died in the Northside Unit of the Youngstown Hospital July 16, aged 81, of cerebral hemorrhage.

Deicher, Henry F. ⊕ Plymouth, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1903; died June 5, aged 80, of carcinoma of the liver.

Dixon, Winfield Scott ⊕ Metropolis, Ill.; Kentucky School of Medicine, Louisville, 1893; died May 23, aged 83.

Dwyer, Patrick James ⊕ Waterbury, Conn.; New York University Medical College, New York, 1897; formerly police and fire surgeon; on the honorary staff of St. Mary's Hospital, where he was on the staff for many years and where he died July 19, aged 80, of hypertrophy of the prostate and arteriosclerotic heart disease.

Edler, Robert Karl, Baltimore, Ohio; Ohio State University College of Medicine, Columbus, 1932; member of the American Society of Anesthesiologists; affiliated with Grant Hospital in Columbus and Lancaster-Fairfield Hospital in Lancaster; died in Peoria, Ill., June 1, aged 55, of cirrhosis of the liver and mitral insufficiency.

Elmer, Matthew K., Bridgeton, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1885; on the staff of the Bridgeton Hospital; formerly city physician; died Aug. 11, aged 93.

Fortney, Frank Dennis, Beckley, W. Va.; Baltimore Medical College, 1904; on the staff of the Pinecrest Sanitarium; died July 30, aged 80, of cerebral hemorrhage.

Franklin, William Essex, Pleasantville, N. J.; Cleveland Homeopathic Medical College, 1909; for many years practiced in Pittsburgh; died July 13, aged 70, of cardiorenal vascular disease.

Gallagher, Patrick Joseph ⊕ Seattle; University of Minnesota College of Medicine and Surgery, Minneapolis, 1904; medical director of the New World Life Insurance Company; while practicing in Spokane served as president of the Spokane County Medical Society; died in Providence Hospital July 12, aged 73, of carcinoma of the stomach.

Gibb, Alice Stearns ⊕ Elizabeth, N. J.; Cornell University Medical College, New York, 1924; affiliated with Elizabeth General Hospital; died in New York Hospital Aug. 2, aged 56, of carcinomatosis.

Goodrich, William Ray ⊕ Bluford, Ill.; College of Medicine and Surgery, Chicago, 1906; for many years surgeon for the Illinois Central Railroad; affiliated with the Jefferson Memorial Hospital in Mount Vernon, where he died July 15, aged 73, of coronary occlusion.

Griffin, Richard W. ⊕ Tiptonville, Tenn.; Medical Department of Tulane University of Louisiana, New Orleans, 1894; died in the Baptist Hospital, Memphis, July 23, aged 81, of cerebral thrombosis.

Hall, Lynn Thompson ⊕ Omaha; Drake University College of Medicine, Des Moines, 1911; professor of clinical medicine at University of Nebraska College of Medicine; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the attending staff, University of Nebraska, Nebraska Methodist, Bishop Clarkson Memorial, and Lutheran hospitals; died July 10, aged 66, of cerebral hemorrhage.

Hanson, Albert N. ⊕ Santa Monica, Calif.; College of Physicians and Surgeons, Baltimore, 1908; member of the Utah State Medical Association; for many years practiced in Salt Lake City; died July 18, aged 82, of angina pectoris and diabetes mellitus.

Hess, H. Lewis ⊕ Kansas City, Mo.; University Medical College of Kansas City, Mo., 1909; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; affiliated with St. Joseph's and Kansas City General hospitals; died July 29, aged 71, of cerebral thrombosis.

Horn, Isaah Buford, Washington, D. C.; Howard University College of Medicine, Washington, 1926; died July 22, aged 54.

Hunte, August Frederick ⊕ Alhambra, Calif.; Rush Medical College, Chicago, 1899; member of the Minnesota State Medical Association; formerly associated with the Indian Service; died in Garfield Hospital, Monterey Park, July 5, aged 82, of chronic myocarditis and hypertension.

Johnson, Karl Osborn ⊕ Bakersfield, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1942; member of the American Academy of General Practice; died in the Bakersfield Hospital Aug. 3, aged 41, of carcinoma of the testicle.

Johnson, Lee T., Dallas, Texas; University of Louisville (Ky.) Medical Department, 1905; died July 6, aged 70.

Joseph, Walter Max, Cleveland; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, 1921; died June 26, aged 56, of glioma.

Keeler, Harold Raudenbush ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1921; certified by the National Board of Medical Examiners; specialist certified by the American Board of Surgery; fellow of the American College of Physicians; affiliated with Methodist Episcopal Hospital, where he died Aug. 19, aged 59, of carcinoma of the pancreas.

Kelley, John Thomas Jr. ⊕ Washington, D. C.; Columbian University Medical Department, Washington, D. C., 1890; an Associate Fellow of the American Medical Association; professor of gynecology emeritus at Georgetown University School of Medicine; fellow of the American College of Surgeons; on the staff of the Providence Hospital; died July 30, aged 89, of cerebral thrombosis and arteriosclerosis.

Kellum, Monford Romain ⊕ Cleveland; University of Wooster Medical Department, Cleveland, 1901; on the staff of Lutheran Hospital; died July 20, aged 75, of coronary embolism.

Loeser, Wilhelm, Oklahoma City, Okla.; Northwestern University Medical School, Chicago, 1905; died July 10, aged 76, of hypostatic pneumonia.

Longmire, Victor Melton ⊕ Temple, Texas; University of Louisville (Ky.) Medical Department, 1914; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; served during World War I; on the staff of the Scott and White Memorial Hospitals; died July 27, aged 63, of myocardial infarction and arteriosclerosis.

Lucas, Wilbur Wayne ⊕ Tiffin, Ohio; Starling Medical College, Columbus, 1904; member of the American Academy of General Practice; affiliated with Mercy Hospital; died July 18, aged 72, of coronary thrombosis.

McCormick, Roscoe Conklin, Colorado Springs, Colo.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; affiliated with Union Printers Home and Tuberculosis Sanatorium; died in Memorial Hospital June 30, aged 75, of myocardial infarction and coronary occlusion.

Macklin, Walter Fullarton ⊕ Lieut. Col., U. S. Army, retired, Tampa, Fla.; Columbia University College of Physicians and Surgeons, New York, 1898; fellow of the American College of Surgeons; served during World War I; entered the medical corps of the U. S. Army on July 1, 1920; promoted to lieutenant colonel in 1937 and retired April 30, 1939; at one time on the staff of Flushing (N. Y.) Hospital; died recently, aged 78, of cirrhosis of the liver.

Madara, Joseph Edward ⊕ St. Marys, Pa.; Medico-Chirurgical College of Philadelphia, 1911; during World War I commissioned a captain in the U. S. Army and was sent to Camp Las Casas, Puerto Rico, as camp sanitary inspector; died July 25, aged 71, of coronary thrombosis.

Merideth, Clyde O. Jr. ⊕ Emporia, Kan.; University of Kansas School of Medicine, Kansas City, 1931; president of the Lyon County Medical Society; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; on the staff of the Newman Memorial County Hospital and St. Mary's Hospital; died July 26, aged 47, of carcinoma of the lung with metastasis.

Minahan, Patrick Robert ⊕ Green Bay, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; served as president of the State Medical Society of Wisconsin, Brown-Kewaunee Door Counties Medical Society, and Brown County Historical Society; captain in the medical corps of the U. S. Army during World War I; affiliated with Bellin Memorial, St. Mary's, and St. Vincent's hospitals; died July 20, aged 78, of arteriosclerosis and myocarditis.

Nathanson, Millicent E. Falck, San Francisco; University of California Medical School, San Francisco, 1893; died July 15, aged 81, of metastatic carcinoma.

Neville, William, McComb, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1901; president of the First National Bank and of the McColgan Building and Loan Association; died July 27, aged 74, of Hodgkin's disease and carcinoma of the colon.

Nichols, Harry ⊕ Chicago; University of Illinois College of Medicine, Chicago, 1913; affiliated with Garfield Park Community Hospital, where he died Aug. 8, aged 71, of cardiac decompensation and diabetes mellitus.

Payne, John Edward ⊕ Arlington, Va.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1922; staff member of the Arlington Hospital, where he died July 25, aged 55, of cerebral hemorrhage.

Pond, Erasmus Arlington ⊕ Brooklyn; University of Vermont College of Medicine, Burlington, 1889; Bellevue Hospital Medical College, New York, 1890; died in St. John's Hospital July 8, aged 84, of cerebral embolus.

Poole, Albinus ⊕ West Union, W. Va.; University of Maryland School of Medicine, Baltimore, 1900; served as president and secretary of the Doddridge County Medical Society; affiliated with St. Mary's Hospital, Clarksburg, and St. Joseph's Hospital, Parkersburg, where he died July 21, aged 84, of acute leukemia.

Pritchard, William Clarence, Philadelphia; Jefferson Medical College of Philadelphia, 1906; formerly professor of histology and anatomical embryology at Temple University School of Medicine and on the faculty of his alma mater; served on the staff of Temple University Hospital; died Aug. 3, aged 71, of coronary occlusion.

Purdy, Frederick Parsons, Mukwonago, Wis.; Baylor University College of Medicine, Dallas, Texas, 1917; served during World War I; on the staff of the Waukesha Memorial Hospital; died in Veterans Administration Hospital in Wood July 27, aged 61, of cardiac insufficiency.

Roberts, Samuel Tize ⊕ De Ridder, La.; University of the South Medical Department, Sewanee, Tenn., 1901; coroner of Beauregard parish; on the staff of the Beauregard Memorial Baptist Hospital; died July 14, aged 73, of cancer.

Schwatka, Charles Taylor ⊕ Crisfield, Md.; Baltimore University School of Medicine, 1904; died July 10, aged 69, of coronary disease and nephritis.

Seale, Ira Bolton ⊕ Holly Springs, Miss.; Memphis (Tenn.) Hospital Medical College, 1910; past president of the North Mississippi Medical Society; served on the state board of health; on the staff of the North Mississippi Hospital; for many years trustee of the Baptist Memorial Hospital in Memphis, Tenn., and the Blue Mountain (Miss.) College; died in the Mississippi Baptist Hospital, Jackson, Aug. 19, aged 73, of cerebral hemorrhage.

Shumaker, Howard Keller ⊕ Bellevue, Ohio; Starling Medical College, Columbus, 1894; for many years member and president of the board of education; chairman of the board of health of Bellevue; at one time a medical missionary in China; president and a member of the board of directors of the Union Bank; on the staff of Bellevue Hospital; died July 27, aged 81, of coronary thrombosis.

Smith, Bernard Fletcher, San Antonio, Texas; University of Texas School of Medicine, Galveston, 1906; served overseas during World War I; died in the Nix Memorial Hospital July 7, aged 71, of intestinal obstruction, tuberculosis, peritonitis, and gastric ulcer.

Sparks, Thomas Plewman Sr. ⊕ New Iberia, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1920; served during World War II; died July 11, aged 56.

Stahlman, Frederick C. ⊕ Indiana, Pa.; Western University of Pennsylvania Medical College, Pittsburgh, 1896; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; for many years a member and past president of the local school board; affiliated with Charleroi-Monessen Hospital in Charleroi, where he died July 15, aged 84, of a heart attack.

Tiernon, Luke Bart ⊕ St. Louis; St. Louis College of Physicians and Surgeons, 1909; formerly county coroner; member of the Industrial Medical Association; died July 27, aged 70, of cancer.

Watson, James Alexander ⊕ Springville, Ala.; Birmingham Medical College, 1903; past president of the St. Clair County Medical Society; died July 16, aged 78, of pneumonia.

White, Milo Ritter ⊕ Detroit; Johns Hopkins University School of Medicine, Baltimore, 1925; certified by the National Board of Medical Examiners; specialist certified by the American Board of Obstetrics and Gynecology; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; affiliated with the Henry Ford Hospital, where he died July 29, aged 58, of cerebral vascular accident.

Williams, Benjamin Gregory ⊕ Oskaloosa, Iowa; Barnes Medical College, St. Louis, 1902; died in St. Joseph's Hospital, Brainerd, Minn., Aug. 2, aged 78, of multiple cerebral thrombosis due to arteriosclerosis.

Winters, William Thomas, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; served on the staff of the Garfield Park Community Hospital; died July 26, aged 86, of heart disease.

Woolling, Richard H. ⊕ Pulaski, Va.; University College of Medicine, Richmond, 1896; company doctor for the Virginia Iron, Coal and Coke Company; assistant surgeon for the Norfolk and Western Railway Company; a director of the Pulaski National Bank for many years; from 1926 to 1948 on the staff of the Pulaski Hospital, where he died June 17, aged 81, of lymphatic leukemia.

Yocum, Boaz ⊕ Coal City, Ind.; Louisville (Ky.) Medical College, 1893; for many years county health officer; died in Union Hospital, Terre Haute, July 17, aged 85, of prostatitis.

FOREIGN LETTERS

DENMARK

Measures Against Poliomyelitis.—Recent legislation in Denmark reflects the growing recognition of the responsibility of the community for the victims of poliomyelitis. In the past when they have needed prolonged treatment and reeducation of paralyzed limbs, there have been means by which the expenses incurred could be shifted from the individual person to the community. But these means have hitherto been somewhat cumbersome and roundabout, with the result that applicants for financial support have often had to wait a long time for their cases to be acted on. Now, on the recommendation of the physician in charge of the treatment of such patients, the paralyzed patient can receive economic support for two years, in very special cases up to four years, while he is undergoing physical reeducation. He must, however, faithfully follow, the instructions given him by his physicians if he is to qualify for such economic support.

At a recent meeting of the Danish Pediatric Society, Dr. F. Neukirch showed how much can be done by highly specialized treatment in reducing the mortality from poliomyelitis. His material consisted of 2,900 cases, including about 1,000 paralytic patients treated at the Blegdam Hospital between July 7, 1952, and Feb. 8, 1953. There were 341 patients whose respiration or deglutition or both were interfered with so much that special treatment was required. Among the first 31 patients in this class, treated along hitherto conventional lines, as many as 27 died. This appalling mortality led to more radical treatment, started on Aug. 26, 1952, and hinged on cooperation between anesthesiologists and epidemiologists. The treatment consisted of early tracheotomy and the introduction into the trachea of a rubber tube fitted with an inflatable cuff, so devised that it fitted tightly to the wall of the trachea. The so-called to-and-fro system of manual ventilation was accomplished with the help of a rubber bag; the mixture of gas was usually oxygen and nitrogen in equal proportions. The respiratory tract was kept free from secretions by frequent aspiration with a catheter introduced into the tracheal tube. The mortality among the 310 patients treated in this way till Feb. 5, 1953, was reduced from 54% to 38% for the first 50 patients thus treated and to only 22% for the last 50 patients. This achievement went far to prove how much can be effected when great care is taken by the team of physicians and nurses engaged in such highly technical treatment.

Cures for Seasick Seamen.—For a seafaring people like the Danes, the motion sickness, which some men continue to experience in spite of years of seafaring, is a serious problem. It may be supposed that the advances made in the treatment of seasickness during World War II could successfully be used in chronic cases, but this is disproved by a recent systematic investigation by three Danish physicians, Harald Anthonisen, Erik Jacobsen, and Fritz Reymann. In conjunction with the Danish Seamen's Hygiene Committee, a firm of manufacturing chemists, seamen's organizations, and their respective publications, the physicians have circulated a questionnaire to seasick seamen. Their definition of a seasick seaman is a person who, after having been to sea for at least a year, still suffers from seasickness. Altogether 128 seamen and 6 women employed at sea undertook to answer the questionnaires and to participate in a scheme for testing various drugs with antihistamine properties. These drugs included diphenhydramine hydrochloride and dimenhydrinate (Dramamine, Neptusan, etc.).

The recipients of the tablets in question were not told the particular brand to which each consignment of tablets belonged, and when they applied for a new consignment, they were given a different brand and asked to state which of the two proved most effective. A statistical analysis of the information thus obtained failed to show any significant difference between the various brands with regard to their general effect, the time at which they proved effective, the dosage, the duration of their action, and the frequency of side-effects. The side-effect most likely to be troublesome was drowsiness, which, however harmless and even pleasant it may be for a passenger, is much more serious for a seaman when he is on duty. But it was noted that such drowsiness lasted, as a rule, only a short time and was seldom pronounced. In about 52% of all the patients, every sensation of seasickness disappeared, and, in about 27%, appreciable mitigation of symptoms was achieved. There remained 11% for whom some improvement could be claimed and another 11% for whom there was no benefit whatever. No significant difference in the effects of this treatment was demonstrable in connection with the age of these patients, who had been to sea from 1 to 25 years, nor was any new light thrown on the influence, if any, of a familial predisposition to seasickness.

LONDON

Eye Sanatorium.—The first sanatorium devoted to the treatment of ocular tuberculosis in Great Britain was opened in June, 1951. It is situated in Kent, organized by one of the London Regional Hospital Boards, staffed by members of the world-famous Moorfields group of ophthalmic hospitals, and available for the treatment of cases of ocular tuberculosis from all parts of the United Kingdom. Results of the first year operation of the sanatorium have just been reported by D. P. Choyce and A. G. Cross (*Brit. J. Ophth.* **37**:406, 1953). During the year 47 patients were treated and discharged, including 22 with proved or doubtful tuberculosis, 11 with proved or doubtful sarcoidosis, and 14 with nonspecific inflammation.

The general plan of treatment was that patients spent the first two weeks after admission resting in bed. Thereafter they got up for increasing periods until they were up all day except for a rest of one hour after meals. Streptomycin and *p*-aminosalicylic acid were given "where there was evidence to suggest the presence of Mycobacterium tuberculosis, tuberculin where the skin sensitivity was high and the ocular lesions had an appearance suggesting that it was due to hypersensitivity," and cortisone "in acute inflammatory lesions which appeared to be threatening corneal or lens transparency." The average length of stay was four months (range, two months to over a year). All but two patients gained weight, the average increase being 7 lb. (3.2 kg.).

The results of treatment, though the number of cases is too small to be of statistical value, are taken to "suggest that cases of tuberculosis respond well to treatment at the sanatorium, while cases of possible tuberculosis, sarcoidosis and possible sarcoidosis, and nonspecific cases, appear, generally, to improve at the sanatorium, but not in such a marked manner as the definite tuberculosis cases . . . In order to carry out its functions adequately, patients should be admitted to the Eye Sanatorium immediately upon the request of the surgeon in charge of the case. . . ."

The Teaching of General Practice.—The British Medical Students' Association has just published "A Survey of the General Practitioner Schemes in Operation in British Medical Schools." Of the 21 medical schools included in the survey, 9 provide training in general practice that is either officially recognized or organized. These schemes are divided into four categories: (1) health center schemes in centers operated by university authorities for teaching purposes; (2) residential schemes, in which the students spend some time living with the general practitioner, attending his surgery and accompanying him on his rounds; and (3) attachment schemes, in which the student works with a general practitioner only in the mornings for a

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The items in these letters are contributed by regular correspondents in the various foreign countries.

given period of time, usually two weeks, including in some cases evening surgery by arrangement with the general practitioner; and (4) day visit schemes, in which the student spends a day with a general practitioner.

Typical of the "attachment" scheme is that in force at University College Hospital, one of the first London teaching hospitals to adopt such a scheme. Thirteen general practitioners near London take students into their practices, usually for a week. The scheme is entirely voluntary, and is followed in the student's final year. The individual student chooses his practitioner and, in consultation with the medical school authorities, arranges to spend a week with him. As a rule the student lives with the practitioner or in a nearby boarding house. It is estimated that 60% of those eligible participate in the scheme.

Most elaborate of all is the scheme now in force in the University of Edinburgh. Attendance at a public dispensary for the indigent has been compulsory in the Edinburgh medical curriculum for over a century. Officially, it ceased to be compulsory when the National Health Service was introduced in 1948. It was retained, however, on a voluntary and modified basis. In 1952, the university decided to redevelop the scheme and make it compulsory as soon as facilities permitted participation of every student. For the development of the scheme the university last year received a generous grant of £25,000 from the Rockefeller Foundation. In October, 1952, a general practice teaching unit was created as a separate entity of the faculty of medicine. This unit consists of two general practices, with approximately 2,000 patients in each. Each practice is staffed by two physicians, one nurse, one almoner, and one secretary. In addition, there is a director of the unit and a trainee who is a recently qualified graduate appointed for one year. Twelve to 15 students are taken into each practice for an academic term of 10 weeks. Each student spends two afternoons a week attending the practice, but the actual amount of visiting that a student may undertake in addition is left for him to decide. One of the weekly sessions consists of a consulting session, when he is the only person present when the physician sees the patients who attend without an appointment. The student responsible for a patient or for a family visits them in their home, and at the end of his term he is expected to present a written case history, covering social as well as medical details, for discussion by the group.

Private Patients' Prescriptions.—As *Practitioner* (171:2 [July] 1953) points out, "One of the anomalies of the National Health Service for which no justification can be found is that whereby a taxpayer who wishes to obtain his general practice services privately must pay for any drugs or appliances prescribed for him, even though he does not lose his right to obtain his specialist services through the N. H. S." The further comment is made that "Why a patient should be compelled to pay for his medicines simply because he decides to pay his doctor for his professional advice is completely incomprehensible to the ordinary mind—except on political grounds. To deprive a patient of this assistance from the Service is as unjust as it would be to compel every citizen to make full use of the Service." This is a widely held view, and at the recent annual representative meeting of the British Medical Association at Cardiff a motion was passed asking for further reports on the matter to be made to the ministry. Repeated appeals have been made to the ministry but hitherto without any success. It was suggested at Cardiff, however, that there were some grounds for hoping that the ministry might now be prepared to give way on this point.

The Specter of Nationalization.—The following verbatim excerpt from the official report of the annual representative meeting of the British Medical Association at Cardiff in July speaks for itself: "Dr. . . . moved: That this meeting, representative of all branches of the profession, expresses its strong opposition to full-time salaried service, and reaffirms the resolution passed in May, 1946: The medical profession is, in the public interest, opposed to any form of service which leads directly or indirectly to the profession as whole becoming full-time salaried servants of the State or local authorities."

The motion was carried unanimously, only one member failing to vote.

MEXICO

Study of 195 Children with Meningitis.—At the Hospital Infantil (Children's Hospital, Mexico, D. F.), during the period between January, 1951, and February, 1953, every patient with meningoencephalitic manifestations was carefully studied, and cultures of the spinal fluid were carried out. The total series comprised 621 cases. Most of the patients were less than one year old. The results of this investigation, which was undertaken by Drs. Olarte and Reyes, were published in the *Boletín del Hospital Infantil* (10:118, 1953). According to the authors a positive culture developed in 31% of the cases. This permitted classification of the meningitis as follows:

Tuberculous Meningitis.—This was the most frequent type (54.5%) in the group studied. It is not known whether this figure represents a true epidemiological incidence in this part of the country or whether the chronic course of the disease accounts for the greater number of cases seen at the hospital.

Purulent Meningitis.—The bacteria that predominated in this type of meningitis were, in order of frequency: Diplococcus pneumoniae (16.5%), Hemophilus influenzae (9.5%), and Salmonella types (3.0%). The relatively frequent finding of Salmonella meningitis can probably be explained by the high incidence of salmonellosis in Mexico.

Only two cases of Neisseria meningitidis were found. The mortality rate and morbidity of meningococcus meningitis in Mexico City are very low; no epidemic has occurred during recent years.

The remaining 14% of the cases were caused by the following organisms: three by Staphylococcus aureus, two by N. meningitidis, two by Pseudomonas aerurginosa, two by paracolon bacillus, two by Alcaligenes faecalis, two by Proteus mirabilis, two by Staph. albus, one by N. flava, one by Streptococcus pyogenes, one by Str. viridans, one by Escherichia coli, and one by diphteroides. In eight spinal fluids micro-organisms were isolated that could not be completely identified. In four cases, two types of organisms were found simultaneously, and in one case of tuberculous meningitis three different bacteria were isolated.

Effect of DDS on Nocardia Brasiliensis.—The results of the use of DDS (p,p'-sulfonyldianiline) as an active drug against several bacterial diseases, particularly lepromatous leprosy have been reported. The results include the use of DDS on Nocardia brasiliensis. The report refers to studies in vitro, to experimental infection in mice, and to eight cases of actinomycotic mycetoma caused by Nocardia.

Studies in vitro showed that DDS totally inhibited N. brasiliensis at a titer of 1:10,000 and partially inhibited growth at a titer of 1:50,000. Other nocardias studied (N. asteroides, N. madurae, and N. pelletieri), were not sensitive to DDS. The studies on experimental infection in mice with N. brasiliensis, inoculated intraperitoneally, showed only a slight effect of the drug. Infections graded from 1+ to 2+ were observed in the treated animals, as against infections classed as 4+ seen in the controls. The best results were seen in the animals receiving the smaller dose of the inoculum and longer therapy with the drug. No noticeable difference was seen with the different doses used: 100, 200, and 300 mg. per kilogram.

The results of the clinical studies, however, were very encouraging. The clinical course of the eight patients with actinomycotic mycetoma of N. brasiliensis origin averaged four years. In two, the lesions were localized in the soft tissues; in four, the lesions invaded bones and joints; and in two, thoracic and pulmonary invasion were found. Seven of the eight patients were cured after an average of two years of treatment with DDS, given in a dose of 100 mg. two times a day. In one patient with thoracopulmonary lesions, the drug did not have any effect. This patient had previously received sulfoxone (Diasone) sodium irregularly and in insufficient doses. It is concluded that to date DDS is the drug of choice for the treatment of actinomycotic mycetoma of N. brasiliensis origin, that it should be given in doses of 200 mg. daily, and that treatment should be sustained for many months after clinical symptoms have disappeared. Reduction of treatment may cause resistance on the part of the microorganism.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Hospitals in General: Criteria of Tax Exemption.—The plaintiff, Sutter Hospital of Sacramento, filed an action to recover real property taxes paid under protest for the fiscal year 1946-1947. The trial court found that the plaintiff did not meet certain conditions for exemption and, therefore, ruled in favor of the defendant. From this judgment the plaintiff hospital appealed to the Supreme Court of California.

In 1944, a constitutional amendment was adopted relating to the exemption of certain property used for hospital purposes. The relevant portions provide that the "Legislature may exempt from taxation all or any portion of property used exclusively for . . . hospital purposes and owned by . . . corporations organized and operated for . . . hospital . . . purposes, not conducted for profit and no part of the net earnings of which inures to the benefit of any private shareholder or individual." Unlike certain other provisions relating to tax exemptions, said the court, this amendment was not self-executing, and legislation was required in order to effect the exemption of any property. The amendment was purely permissive rather than mandatory in character, and it qualified section 1 of article XIII, which requires that all property be taxed according to its value "except as otherwise in this Constitution provided." In other words, the legislature could refrain from exempting any of the property referred to in the amendment, or it could exempt only such property as might meet the conditions specified in the amendment and such further conditions as the legislature might see fit to impose. The legislature followed the latter course, continued the Supreme Court, and enacted section 214 of the Revenue and Taxation Code, which imposes conditions in addition to those found in the constitutional amendment and provides that "Property used exclusively for . . . hospital . . . purposes owned and operated by . . . corporations organized and operated for . . . hospital . . . purposes is exempt from taxation if: (1) The owner is not organized or operated for profit; (2) No part of the net earnings of the owner inures to the benefit of any private shareholder or individual; (3) The property is not used or operated by the owner or by any other person for profit regardless of the purposes to which the profit is devoted; . . ."

The plaintiff was organized as a nonprofit corporation in 1935. It acquired the physical assets of its predecessor by giving in exchange its bonds. In 1945, plaintiff's physical assets for accounting purposes had a value of $764,895.39, and its then bonded indebtedness was some $292,000. For 1945, the surplus of income over current expenses, which included interest payments and depreciation on the buildings, machinery, and equipment, amounted to $86,609.24; for 1946, the surplus was $106,603.12. Reduced to percentages, the surplus for each year was slightly in excess of 8% of gross income. The surplus was mingled with other cash on hand and was used for debt retirement and for expansion, such as, for instance, the building and equipping of an x-ray room in 1947 at a cost of $60,000.

It is conceded that the plaintiff operated its hospital properties with the intent of producing, if possible, a surplus of income over expenses so as to permit the periodic retirement of a portion of its bonded indebtedness and to permit the expansion of its facilities. It is further conceded that it had succeeded and was succeeding in accomplishing this purpose. The defendant argues, therefore, that by reason of the plaintiff's profit-making intent and purpose, the allowance of the claimed exemption would run counter to the statutory condition that such property be "not used or operated by the owner . . . for profit regardless of the purposes to which the profit is devoted."

In relation to tax laws, the phrase "conducted for profit," which appears to be the equivalent of "operated for profit," has presented some difficulty but has been generally held to convey the meaning of operated or conducted for the purpose of making a profit. Accordingly, the test indicated by such phrases, as so construed, is not necessarily whether there is or may be a profit, but whether the claimant is operated or conducted for the purpose of making a profit; that is, whether the charges are fixed with the intention of yielding a surplus over and above operating expenses.

It appears that, at the time section 214 of the Revenue and Taxation Code was enacted in 1945, the meaning of the word "profit," as used in tax exemption laws, had been construed in such manner that the nonprofit requirements were deemed to be satisfied so long as none of the "net earnings" accrued "directly or indirectly to the stockholders or members of the association" or so long as no part of the "net income inures to the benefit of any private person." In other words, the Supreme Court continued, the profit concept had been defined in terms relating solely to the purpose for which "net income" or "net earnings" might be used and only the use thereof for the purpose of benefiting a private person was prohibited. In the light of these prior definitions, judicial and legislative, we turn now to a consideration of the terms employed in the first three subdivisions of section 214 of the Revenue and Taxation Code. These subdivisions contain separately stated but interrelated conditions. Property used exclusively for hospital purposes is thereby declared exempt only "if: (1) The *owner is not organized or operated for profit;* (2) No part of the *net earnings* of the owner inures to the benefit of any private shareholder or individual; (3) The property is *not used or operated* by the owner or by any other person *for profit regardless of the purposes to which the profit is devoted*; . . ." If subdivision 3 had been omitted, it might well be argued that the legislature intended that the nonprofit conditions of subdivision 1 would be satisfied so long as none of the "net earnings" inured to the benefit of any private person. But subdivision 3 cannot be declared to have been inserted without reason, and it seems clear that it was intended thereby to broaden the profit concept so as to deny exemption whenever the property is operated for the purpose of profit "regardless of the purposes to which the profit is devoted." Thus, said the court, it appears that the legislature adopted a different concept of "profit" for the purposes of section 214 by providing that the nonprofit requirements could not be satisfied merely by devoting the net earnings to exempt (hospital) purposes. In any event, the most that can be said is that there is grave doubt as to whether the legislature intended that the property used as is plaintiff's property, by an owner operating for the admitted purpose of producing net earnings, was intended to be accorded the exemption.

Whether the accrual of "net earnings" will defeat the right to the exemption depends on the particular facts involved. Here the determinative factor is the operation of plaintiff's property for the admitted purpose of producing a profit in the sense that the operation was one deliberately designed to produce income in excess of all operating costs. The fact that plaintiff has succeeded in producing net earnings is not accidental or allocable to a fortuitous error in judgment in determining the charges made for its services. On the contrary, plaintiff functioned on a sound financial basis in a manner akin to any modern commercial enterprise intent on producing a profit from its operations. The plaintiff argued that the above indicated construction of the welfare exemption, denying exemption because of the adoption of sound financial practices, will make it difficult, if not impossible, for modern hospitals to plan for expansion and the improvement of facilities for the better service of the public without losing the benefit of the exemption. This argument may merit serious consideration, but it should be addressed to the legislature rather than to the courts. This court's function begins and ends with construing the statute as enacted. The present form of the statute compels the conclusion that plaintiff's claim for exemption must be denied because of its failure to meet the condition that its property be "not used or operated . . . for profit regardless of the purposes to which the profit is devoted."

Accordingly the judgment of the trial court in favor of the defendant and against the hospital was affirmed. *Sutter Hospital of Sacramento v. City of Sacramento, 244 P. (2d) 390 (California 1952).*

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Am. J. Diseases Children, Chicago

85:633-758 (June) 1953

*Function Recovery Pattern in Acute Renal Failure Following Ingestion of Mercuric Chloride. S. A. Kaplan and S. J. Fomon.—p. 633.
*Use of Sulfonamides and Penicillin to Prevent Recurrence of Rheumatic Fever: 12 Year Study. E. Roberts.—p. 643.
Erythema Nodosum. L. I. Booth.—p. 648.
*Hemolytic Disease of Newborn Due to ABO Incompatibility. H. G. Dunn.—p. 655.
Experiences in 289 Cases of Infantile Diarrhea in Nutritionally Deficient Group of Infants. A. Friedman.—p. 675.
Clinical Study of Skin Rashes During Newborn Period. C. C. Fischer. —p. 688.
Bile Peritonitis in Infancy. J. J. Byrne and G. T. Bottomley.—p. 694.
Hemophilic Condition in Girl. A. J. Quick and C. V. Hussey.—p. 698.

Pattern of Functional Recovery in Acute Renal Failure.—Study of a child in whom a so-called ischemuric episode, or episode of renal ischemia resulting in ischuria, developed after the ingestion of mercuric chloride showed that the return of renal function, which was fairly complete, followed a distinct pattern. Function was recovered first in the glomeruli, then in the proximal portions of the nephron, and finally in the distal segments. The close correlation between this sequence of events and the structural path of healing suggested by a knowledge of the changes produced in the nephrons during acute renal failure indicates that recovery from renal failure due to other causes may follow the pattern observed in this case. Fluid replacement therapy during the initial stages of diuresis should be guided by a knowledge of the composition of the fluid being lost. This fluid may be identical with an ultrafiltrate of plasma (virtually extracellular fluid); it should, therefore, be replaced with isotonic sodium chloride solution or solutions similar in composition to extracellular fluid, such as Ringer's solution. The kidneys possess little or no ability to excrete or retain solutes selectively and this makes it advisable to give the replacement fluid intravenously, thus avoiding modification of the solution by the bowel wall. The difficulties of replacement therapy diminish as renal function returns; if the water and electrolytes given are adequate in quantity, the composition of the body fluids will be kept constant.

Prophylactic Use of Sulfonamides and Penicillin in Rheumatic Fever.—Rheumatic fever recurred in only two of a group of 467 hospitalized children receiving prophylactic treatment with sulfonamides for from three months to two years over a 10-year period. These figures may be compared with 9 recurrences in a group of 44 controls, or 38 recurrences in a group of 154 children observed in a two-year period prior to the institution of the sulfonamide regimen. Toxic reactions, especially frequent with sulfanilamide, necessitated the discontinuance of sulfonamide therapy in 34 other children. Investigation of recurrences in children discharged from the hospital with the expectation that they would be kept on the sulfonamide regimen under the care of their own physicians or a clinic showed that in each case recurrence was preceded by discontinuance of sulfonamides. Fifteen of the children with recurrences were readmitted to the hospital; they were found to have stopped taking the drug from three months to two years (average, seven months) earlier. The high incidence of untoward reactions to the sulfonamides led to their replacement with crystalline penicillin G given orally. Tolerance for this product was perfect and during the period from May, 1950, to July 1, 1952, there were no recurrences of rheumatic fever in any of the 102 patients receiving it. One patient, who was discharged from the hospital completely free of activity, was readmitted a little more than two months later with a fulminating recurrence; inquiry showed that his parents had failed to give him penicillin after the two weeks' supply given to them on his discharge was exhausted. These figures show that both the sulfonamides and penicillin, when given continuously, can prevent the recurrence of rheumatic activity; penicillin, however, has the great advantage of not causing toxic reactions.

Hemolytic Disease of the Newborn Due to ABO Incompatibility.—Hematological and serological investigations furnished strong evidence that ABO incompatibility was responsible for neonatal hemolytic disease in binovular twins, in one of whom kernicterus resulted in death, while the other made a full recovery. The mother was a healthy Rh-positive primigravida, aged 25, who had never received any transfusions or injections of blood or serum. She had twin cousins and twin uncles and was herself a twin. Tests showed that the only demonstrable antibody which could have played a part in the hemolytic disease of the infants was her anti-B; β-agglutinin was found in her serum in high titer, rising to a maximum of 32,000 on the 22nd day after delivery. Her marked isoimmunization was also indicated by the presence of immune anti-B agglutinins and hemolysins. Maternal ABO isoimmunization occurs in a considerable proportion of normal pregnancies without injury to the infant; before attributing erythroblastosis fetalis to anti-A or anti-B, other possible incompatibilities should be thoroughly excluded and some evidence of the presence, or preferably action, of harmful maternal antibodies in the infant should be obtained. Diagnosis in the case of these twins was made too late for any effective treatment to be undertaken; the less severely affected twin recovered without specific treatment. Initial asphyxia and greater immaturity may have contributed to the development of kernicterus in the twin who died. The possibility of ABO incompatibility should be kept in mind, especially when an Rh-positive mother has previously given birth to infants affected by erythroblastosis or icterus praecox and possibly also when there is a history of unexplained abortions.

Annals of Internal Medicine, Lancaster, Pa.

38:1115-1394 (June) 1953

Adrenal Hormone Therapy in Viral Hepatitis: I. Effect of ACTH in Acute Disease. A. S. Evans, H. Sprinz and R. S. Nelson.—p. 1115.
Id.: II. Effect of Cortisone in Acute Disease. A. S. Evans, H. Sprinz and R. S. Nelson.—p. 1134.
*Id.: III. Effect of ACTH and Cortisone in Severe and Fulminant Cases. A. S. Evans, H. Sprinz and R. S. Nelson.—p. 1148.
*Renal Disease with Salt Losing Syndrome: Report of Four Cases of So-Called "Salt Losing Nephritis." F. D. Murphy, A. L. Settimi and N. J. Kozokoff.—p. 1160.
Localized Interlobar Effusion in Congestive Heart Failure. W. Weiss, K. R. Boucot and W. I. Gefter.—p. 1177.
Ischemic Basis of "Peptic" Ulcer: I. Historical Definition of Present Status. E. D. Palmer and D. P. Buchanan.—p. 1187.
*Pulmonary Paragonimiasis: Review with Case Reports from Korea and Philippines. F. T. Roque, R. W. Ludwick and J. C. Bell.—p. 1206.
Triethylene Melamine in Treatment of Lymphomas and Other Neoplastic Diseases. O. W. Burtner, L. C. Jensen and J. M. Rumball.—p. 1222.
Clinical Experience with Sympathetic Blocking Agents in Peripheral Vascular Disease. M. Moser, A. G. Prandoni, J. A. Orbison and T. W. Mattingly.—p. 1245.
Effect of L. E. Cell Test on Clinical Picture of Systemic Lupus Erythematosus. E. L. Dubois.—p. 1265.

Corticotropin and Cortisone in Severe and Fulminant Viral Hepatitis.—This report is concerned with the results of corticotropin and cortisone therapy in 11 severe cases of viral hepatitis that had not responded to conservative measures; six patients

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Titles marked with an asterisk (*) are abstracted.

ultimately died. The six fatal cases represent all the deaths in some 1,500 cases of hepatitis admitted during the period of this investigation. Five of the 11 patients were moderately to severely ill and 6 had a fulminant course with coma. In the first group, hormone therapy resulted in a symptomatic control and a drop in serum bilirubin, but in three of these relapses occurred. One patient had multiple relapses. No significant benefits were seen from hormonal therapy in the second group, and all six patients died. This is the third of three papers dealing with the use of adrenal hormones in viral hepatitis. The effect of these hormones on the clinical course and manifestations of viral hepatitis has been at times as striking as the results reported in rheumatic fever and rheumatoid arthritis. Unlike these diseases, however, hepatitis is usually a benign and self-limited disease followed by immunity. The high relapse rate attending corticotropin and cortisone therapy in hepatitis may reflect interference in immunity mechanisms. For this reason the routine use of hormone therapy in viral hepatitis does not seem indicated.

Renal Disease with the Salt Losing Syndrome.—Murphy and his associates point out that the term "salt losing nephritis" was introduced by Thorn and associates, when they described renal failure that simulated cortical insufficiency. They found that, in addition to the hypochloremia and dehydration without edema, there was present a shock-like state simulating acute adrenal insufficiency. Their report of two cases was followed by others presenting a total of eight cases. Murphy and associates report four additional patients with renal disease who exhibited the salt losing syndrome. The first patient had chronic renal disease that developed insidiously and was diagnosed as chronic glomerulonephritis. There were dehydration, low blood pressure, polyuria with small quantities of albumin, a low specific gravity and no casts. Weakness, pain in the legs, mental confusion, and vascular collapse disappeared along with other features of hypochloremia following intravenous injections of salt solution and sodium lactate. In the second patient, a diagnosis of extrarenal uremia and alkalosis was made because of excessive intake of alkalies and the elevated carbon dioxide combining power of the plasma. The disorder was later recognized as the salt depletion syndrome, and suitable treatment was followed by improvement. The third patient, in addition to the salt losing syndrome, had myocardial insufficiency and hypertension, as well as complications of chronic nephritis. Unfortunately, treating the salt losing syndrome by the infusion of a 3% sodium chloride solution resulted in acute pulmonary edema and death. Case 4 illustrates that the salt losing nephritis may develop during acute renal disease and that the process in the tubular apparatus may be reversible. The authors feel that the salt losing syndrome should be suspected in all cases of chronic renal insufficiency with impending uremia, particularly in these days when restriction of salt has become so popular in the treatment of nephritis, edema, heart disease and hypertension. Early recognition and adequate treatment may add years to the life of these patients.

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Geriatrics, Minneapolis

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*Function Recovery Pattern in Acute Renal Failure Following Ingestion of Mercuric Chloride. S. A. Kaplan and S. J. Fomon.—p. 633.
*Use of Sulfonamides and Penicillin to Prevent Recurrence of Rheumatic Fever: 12 Year Study. E. Roberts.—p. 643.
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*Hemolytic Disease of Newborn Due to ABO Incompatibility. H. G. Dunn.—p. 655.
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Bile Peritonitis in Infancy. J. J. Byrne and G. T. Bottomley.—p. 694.
Hemophilic Condition in Girl. A. J. Quick and C. V. Hussey.—p. 698.

Pattern of Functional Recovery in Acute Renal Failure.—Study of a child in whom a so-called ischemuric episode, or episode of renal ischemia resulting in ischuria, developed after the ingestion of mercuric chloride showed that the return of renal function, which was fairly complete, followed a distinct pattern. Function was recovered first in the glomeruli, then in the proximal portions of the nephron, and finally in the distal segments. The close correlation between this sequence of events and the structural path of healing suggested by a knowledge of the changes produced in the nephrons during acute renal failure indicates that recovery from renal failure due to other causes may follow the pattern observed in this case. Fluid replacement therapy during the initial stages of diuresis should be guided by a knowledge of the composition of the fluid being lost. This fluid may be identical with an ultrafiltrate of plasma (virtually extracellular fluid); it should, therefore, be replaced with isotonic sodium chloride solution or solutions similar in composition to extracellular fluid, such as Ringer's solution. The kidneys possess little or no ability to excrete or retain solutes selectively and this makes it advisable to give the replacement fluid intravenously, thus avoiding modification of the solution by the bowel wall. The difficulties of replacement therapy diminish as renal function returns; if the water and electrolytes given are adequate in quantity, the composition of the body fluids will be kept constant.

Prophylactic Use of Sulfonamides and Penicillin in Rheumatic Fever.—Rheumatic fever recurred in only two of a group of 467 hospitalized children receiving prophylactic treatment with sulfonamides for from three months to two years over a 10-year period. These figures may be compared with 9 recurrences in a group of 44 controls, or 38 recurrences in a group of 154 children observed in a two-year period prior to the institution of the sulfonamide regimen. Toxic reactions, especially frequent with sulfanilamide, necessitated the discontinuance of sulfonamide therapy in 34 other children. Investigation of recurrences in children discharged from the hospital with the expectation that they would be kept on the sulfonamide regimen under the care of their own physicians or a clinic showed that in each case recurrence was preceded by discontinuance of sulfonamides. Fifteen of the children with recurrences were readmitted to the hospital; they were found to have stopped taking the drug from three months to two years (average, seven months) earlier. The high incidence of untoward reactions to the sulfonamides led to their replacement with crystalline penicillin G given orally. Tolerance for this product was perfect and during the period from May, 1950, to July 1, 1952, there were no recurrences of rheumatic fever in any of the 102 patients receiving it. One patient, who was discharged from the hospital completely free of activity, was readmitted a little more than two months later with a fulminating recurrence; inquiry showed that his parents had failed to give him penicillin after the two weeks' supply given to them on his discharge was exhausted. These figures show that both the sulfonamides and penicillin, when given continuously, can prevent the recurrence of rheumatic activity; penicillin, however, has the great advantage of not causing toxic reactions.

Hemolytic Disease of the Newborn Due to ABO Incompatibility.—Hematological and serological investigations furnished strong evidence that ABO incompatibility was responsible for neonatal hemolytic disease in binovular twins, in one of whom kernicterus resulted in death, while the other made a full recovery. The mother was a healthy Rh-positive primigravida, aged 25, who had never received any transfusions or injections of blood or serum. She had twin cousins and twin uncles and was herself a twin. Tests showed that the only demonstrable antibody which could have played a part in the hemolytic disease of the infants was her anti-B; β-agglutinin was found in her serum in high titer, rising to a maximum of 32,000 on the 22nd day after delivery. Her marked isoimmunization was also indicated by the presence of immune anti-B agglutinins and hemolysins. Maternal ABO isoimmunization occurs in a considerable proportion of normal pregnancies without injury to the infant; before attributing erythroblastosis fetalis to anti-A or anti-B, other possible incompatibilities should be thoroughly excluded and some evidence of the presence, or preferably action, of harmful maternal antibodies in the infant should be obtained. Diagnosis in the case of these twins was made too late for any effective treatment to be undertaken; the less severely affected twin recovered without specific treatment. Initial asphyxia and greater immaturity may have contributed to the development of kernicterus in the twin who died. The possibility of ABO incompatibility should be kept in mind, especially when an Rh-positive mother has previously given birth to infants affected by erythroblastosis or icterus praecox and possibly also when there is a history of unexplained abortions.

Annals of Internal Medicine, Lancaster, Pa.

38:1115-1394 (June) 1953

Adrenal Hormone Therapy in Viral Hepatitis: I. Effect of ACTH in Acute Disease. A. S. Evans, H. Sprinz and R. S. Nelson.—p. 1115.
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*Id.: III. Effect of ACTH and Cortisone in Severe and Fulminant Cases. A. S. Evans, H. Sprinz and R. S. Nelson.—p. 1148.
*Renal Disease with Salt Losing Syndrome: Report of Four Cases of So-Called "Salt Losing Nephritis." F. D. Murphy, A. L. Settimi and N. J. Kozokoff.—p. 1160.
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*Pulmonary Paragonimiasis: Review with Case Reports from Korea and Philippines. F. T. Roque, R. W. Ludwick and J. C. Bell.—p. 1206.
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Clinical Experience with Sympathetic Blocking Agents in Peripheral Vascular Disease. M. Moser, A. G. Prandoni, J. A. Orbison and T. W. Mattingly.—p. 1245.
Effect of L. E. Cell Test on Clinical Picture of Systemic Lupus Erythematosus. E. L. Dubois.—p. 1265.

Corticotropin and Cortisone in Severe and Fulminant Viral Hepatitis.—This report is concerned with the results of corticotropin and cortisone therapy in 11 severe cases of viral hepatitis that had not responded to conservative measures; six patients

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Titles marked with an asterisk (*) are abstracted.

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Acta Paediatrica, Stockholm

42:87-176 (March) 1953. **Partial Index**

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*Supply of Oxygen to Prematures and Appearance of Retrolental Fibroplasia. A. Huggert.—p. 147.

Administration of Oxygen and Retrolental Fibroplasia.—Huggert, in a previous paper, reported observations on the eyegrounds of 66 prematurely born infants with a birth weight of less than 2,600 gm. In many of these the fundus showed peripheral edema and changes in the caliber of the vessels, and more than 25% exhibited the picture similar to that regarded as the early stage of retrolental fibroplasia. Huggert reports further observations on 130 cases. The retinal vessels were often very narrow during the administration of oxygen, and vascular dilatation and peripheral edema occurred in most cases when oxygen was stopped, but in some instances even during the administration of oxygen. In the infants who had not been given oxygen, dilatation of the vessels and edema occurred immediately after birth. Retrolental fibroplasia developed in two of those who were treated with oxygen. Recently one of the infants in Huggert's clinic showed such severe retinal changes of early retrolental fibroplasia type that the infant was replaced in an incubator and was treated with oxygen. Under the oxygen treatment (with approximately 60% oxygen) there was a reversion of the retinal changes such as was reported by Szewczyk. Later, when the oxygen was gradually reduced, there was a reappearance of the vascular dilatation in one of the eyes which lasted for about a week and then disappeared. This case has been observed too recently for final evaluation. As further proof of a connection between oxygen therapy and retrolental fibroplasia the author points out that the latter was rarely if ever observed before 1941, when it was noted in an increasing number of prematurely born infants in the United States. In Sweden it began to be observed more frequently in 1944 and 1945. Incubators with special oxygen administration began to be generally used in the United States about 1940 and in Sweden in 1944. The incubators used in Sweden usually supply 45% oxygen, whereas many of the models used in the United States supply between 60 and 80% oxygen. If the oxygen content as such, or the rapid change-over from a high oxygen content to a normal one, is the decisive factor in retrolental fibroplasia, the stress involved in the change will be severer in the American type incubators with their more concentrated oxygen supply.

have lain only in an orthopneic position should not be made to lie horizontally on the operative table. These patients were placed at a 35 to 45 degree angle and the plane of the table was slightly rotated to the left. A dose of 0.05 gm. of Etamyl (5,5-isoamylethylbarbiturate) or pentobarbital (Nembutal) was given to the patients three hours before the operation and again one hour later, then 1 cg. of morphine with 0.5 mg. of atropine was given one hour before the operation. Anesthesia was accomplished with thiopental (Pentothal) sodium, curare, procaine and ether. Only one patient died during the operation, but she had been placed in a position which was more horizontal than her usual position and death was ascribed to this fact rather than to the ether. The patients were given oxygen immediately after the operation and anticoagulants on the second day. Venous thrombosis of the legs developed in eight patients, occurring generally between the 3rd and 10th day. It was located in the right leg of four patients, the left leg of three, and both legs of one patient. However, the edema which followed disappeared rapidly and entirely. Bronchopneumonia developed in one patient on the eighth day but it was cured with antibiotics. There was no case of embolism. Results were gratifying in eight patients who have been well for several months; some of them have already returned to their jobs. A mild cardiocirculatory insufficiency is still present in two patients who, however, can walk if they follow a proper diet and proper medication. Four patients improved slightly, but the disease regressed rapidly to the preoperative stage. Two of them have since died. The operation was tolerated well and gave better results in patients with elevated pressures in the right ventricle (even double the normal values) but with normal or slightly increased atrial pressures. It was tolerated less well by patients with elevated atrial pressures. The good results brought about by this operation should not be entirely ascribed to the improved cardiovascular dynamics. A general change in tonus and contractility especially of the arterioles is suggested.

Klin. Monatsbl. für Augenheilkunde, Stuttgart

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Observations on the Eye Following Treatment of Tuberculous Meningitis with Streptomycin and Isoniazid. A. Obal.—p. 584.
Influence of Dextrose Bath on Pathologically Increased Intraocular Pressure. H. Löhlein.—p. 599.

Congenital Absence of Tear Secretion.—Sjögren reports 14 cases of congenital absence of tear secretion which he found recorded in the literature, beginning with the first case described by Morton in 1844 and ending with a case observed by himself and Eriksen in 1950. The condition is usually of neurogenic origin, that is, it is due to aplasia of the secretory nuclei, or to the fact that the connection between the secretory center and the nerve tracts is lacking now and then in newborn infants. It may be caused by a congenital disturbance in the autonomic nervous system. It is possible that in a few cases aplasia of the lacrimal glands exists. This has not been definitely proved, but if such cases do occur they may perhaps be incomplete forms of congenital ectodermal dysplasia. Thus there seems to be a congenital form of keratoconjunctivitis sicca which differs fundamentally from the form which occurs adults; in infants there is aplasia, in adults, atrophy.

in the size of the ulcer. The patient may be discharged only when the lesion has disappeared completely and normal pliability to the gastric wall in the affected area has been restored. Then a regular radiologic examination of the stomach should be taken twice a year for the first three years and annually thereafter, even if digestive symptoms are no longer present.

Northwest Medicine, Seattle

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muscles so that the face, neck, and trunk appear obese and the extremities thin, muscular weakness, hypertension, osteoporosis, amenorrhea or impotence, hirsutism and acne in the absence of other evidences of virilization, thin skin with purplish striations and a tendency to ecchymosis, and a cervicothoracic fat pad. Usually the urine is alkaline, lymphopenia and eosinopenia are present, and carbohydrate tolerance is impaired. Some patients with Cushing's syndrome exhibit, as one manifestation of adrenal cortical hyperfunction, a disturbance of the plasma electrolytes which, in its classical form, is characterized by decreased concentrations of potassium and chloride, increased concentration of bicarbonate and increased pH. The concentration of sodium may or may not be increased. This condition has usually been designated as hypochloremic, hypopotassemic alkalosis. On the basis of observations at the Mayo Clinic, Sprague and Power summarize the electrolyte disturbances of Cushing's syndrome, which are a consequence of the action of excessive amounts of adrenal hormones, probably cortisone-like, as follows: Presumably in all cases there is a depletion of intracellular potassium and probably an increase in intracellular sodium. In some, particularly those in which the disease is severe, there is, in addition, a lowering of the extracellular concentration of potassium as measured in the blood plasma or serum. When hypopotassemia exists, and occasionally when it does not, there is likely to be hypochloremia and alkalosis. Hypernatremia, due to the Na-retaining activity of adrenal steroids, may or may not be present. Occasionally retention of sodium is sufficiently marked to cause edema. The muscular weakness that is characteristic of Cushing's syndrome is probably not solely a result of potassium deficiency, but rather in part a consequence of wasting of muscle due to the catabolic action of cortisone-like steroids on protein. However, extreme degrees of weakness, or even paralysis, are occasionally dramatically improved by administration of potassium. In such instances potassium deficiency appears to be an important factor in the muscular weakness. While administration of potassium chloride will correct the electrolyte abnormalities of Cushing's syndrome, it will not correct the other features of the syndrome.

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What Blue Shield Can't Pay—and Why. G. E. Peters.—p. 238.
Hematuria. H. V. Munger.—p. 241.
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Pitfalls in Urological Diagnosis. E. Davis.—p. 250.

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248:995-1036 (June 11) 1953

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*Nonsyphilitic Interstitial Keratitis and Bilateral Deafness (Cogan's Syndrome) Associated with Essential Polyangitis (Periarteritis Nodosa): Review of Syndrome with Consideration of Possible Pathogenic Mechanism. L. Oliner, M. Taubenhaus, T. M. Shapira and N. Leshin. —p. 1001.
*Prognosis in Gastric Ulcer Treated Conservatively. B. M. Banks and L. Zetzel.—p. 1008.
Case of Pulmonary Tularemia Treated with Aureomycin. E. L. Hamilton. —p. 1013.
Treatment of Peptic Ulcer (Concluded). L. Zetzel.—p. 1015.
Anaphylactoid Reaction to Hydriodide of Diethylaminoethyl Ester of Penicillin G (Neo-Penil). L. A. Chotkowski.—p. 1022.

Nonsyphilitic Interstitial Keratitis with Deafness.—Nonsyphilitic interstitial keratitis with deafness is rare, only 15 cases having been reported so far. It appears suddenly in young adults. The initial symptoms may involve one or both eyes, with redness, blurring of vision, pain, lacrimation, blepharospasm and subconjunctival hemorrhage; or the disturbances may involve the ear with symptoms similar to those of Ménière's syndrome, namely, nausea, vomiting, tinnitus, vertigo, and rapid development of deafness. The symptoms of the two systems may occur either within a few hours of each other or several months apart, but most commonly they follow within one or two weeks. A granular corneal infiltrate, patchy in distribution, is present mainly in the posterior half of the cornea, but the cornea is not thickened, and the retina is not involved. When vascularization and keratitic precipitates are present the visual acuity is diminished. Unilateral or bilateral inner-ear deafness with diminished or no vestibular responses develops. Neurological examination and reaction for syphilis are negative, and the cerebral fluid is normal. The course of the disease is chronic with one acute episode and daily varying symptoms in the same or from one to the other eye, or with several episodes and remissions in between. The prognosis is unfavorable since treatment is of little benefit although with cortisone the ocular sequelae may be minimized. The etiology of this syndrome is still unknown and has been ascribed to postvaccinial encephalitis and viral infection. On the basis of some cases in which a more generalized involvement was reported, the hypothesis was advanced that the generalized illness may have been polyangitis (periarteritis nodosa). This had varied from minimal perivascular lymphocytic infiltration to necrotic inflammation of all the vessels and granuloma formation with giant cells. The ocular and aural symptoms may have been only localized manifestations of the disease and the patients in whom the generalized disease was not reported may not have been followed until the generalized symptoms developed. The authors report the case of a 23-year-old woman in whom the vascular reactions occurred after two acute episodes of ocular and aural symptoms. Later the gastrointestinal tract, skin, heart, pleura, and sclera became involved, and there was a flare-up of the keratitis, abscess formation with periarteritis changes and appearance of giant cells with granuloma formation. The prognosis was favorable because there was never a major renal involvement. But although cortisone improved her condition, bilateral deafness, loss of vestibular function, and white corneal opacities have remained.

Late Results of Conservative Treatment of Gastric Ulcer.—A follow-up was made of 48 patients with gastric ulcer who were treated conservatively from 1931 to 1946. Results indicated that the prognosis of gastric ulcer under medical treatment is far from reassuring in view of the probability of present or future carcinoma and the incidence of recurrences and complications. There were 34 males and 14 females in this group; the youngest patient was 7 years old and four patients were more than 70 years old. A typical ulcer sequence pain was present in 34 patients, and massive bleeding in 17. Anemia was present in six and in five of them it was ascribed to gross bleeding. The symptoms before hospitalization had lasted two years in 16 patients, two to five years in 14, and more than five years in 16; the duration of the symptoms was not recorded in 2 patients. The ulcers were located in the lower third of the stomach in 13 patients, in the middle third in 17, and in the upper third in 17. One patient had multiple ulcers and seven had an associated duodenal ulcer. The symptoms had disappeared quickly within the first week of treatment in all the patients, and the associated diseases (mostly cardiovascular and pulmonary disorders) did not affect the clinical course of the ulcer. Three-fifths of the patients received optimal management whereas the others were discharged prematurely. Four patients were followed for more than 15 years, seven for 10 to 15 years, 20 for 5 to 10 years, and the others for about 2½ years. Only 11 patients have always remained free of ulcer symptoms, 7 are still well despite one or more recurrences of ulcer activity, and 2 patients have died of other causes. Of 20 patients who continued to have periodic exacerbations of the symptoms 6 have been operated on and 4 have been similarly advised. Eight patients have died of verified carcinoma of the stomach. When a diagnosis of gastric ulcer is made, the patient should be hospitalized immediately for evaluation and decision as to the best method of treatment. Conservative treatment is justified if after a trial period of approximately eight weeks serial roentgenograms reveal a progressive decrease in the size of the ulcer. The patient may be discharged only when the lesion has disappeared completely and normal pliability to the gastric wall in the affected area has been restored. Then a regular radiologic examination of the stomach should be taken twice a year for the first three years and annually thereafter, even if digestive symptoms are no longer present.

Northwest Medicine, Seattle

52:351-432 (May) 1953

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Acta Paediatrica, Stockholm

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Asthmatic Bronchitis in Children: Prognosis for 162 Cases, Observed 6-11 Years. I. Boesen.—p. 87.
Coeliac Disease: III. Excretion of Unsaturated and Saturated Fatty Acids by Patients with Coeliac Disease. H. A. Weijers and J. H. van de Kamer.—p. 97.
Further Studies of Tuberculin Hemagglutination in Tuberculous Infection, Benign and Virulent. R. Lagercrantz, J. C. Peterson and J. Lind. —p. 113.
Plasma Calcium in Cord Blood and in the Newborn: Preliminary Report. N. Hallman and I. Salmi.—p. 126.
*Supply of Oxygen to Prematures and Appearance of Retrolental Fibroplasia. A. Huggert.—p. 147.

Administration of Oxygen and Retrolental Fibroplasia.—Huggert, in a previous paper, reported observations on the eyegrounds of 66 prematurely born infants with a birth weight of less than 2,600 gm. In many of these the fundus showed peripheral edema and changes in the caliber of the vessels, and more than 25% exhibited the picture similar to that regarded as the early stage of retrolental fibroplasia. Huggert reports further observations on 130 cases. The retinal vessels were often very narrow during the administration of oxygen, and vascular dilatation and peripheral edema occurred in most cases when oxygen was stopped, but in some instances even during the administration of oxygen. In the infants who had not been given oxygen, dilatation of the vessels and edema occurred immediately after birth. Retrolental fibroplasia developed in two of those who were treated with oxygen. Recently one of the infants in Huggert's clinic showed such severe retinal changes of early retrolental fibroplasia type that the infant was replaced in an incubator and was treated with oxygen. Under the oxygen treatment (with approximately 60% oxygen) there was a reversion of the retinal changes such as was reported by Szewczyk. Later, when the oxygen was gradually reduced, there was a reappearance of the vascular dilatation in one of the eyes which lasted for about a week and then disappeared. This case has been observed too recently for final evaluation. As further proof of a connection between oxygen therapy and retrolental fibroplasia the author points out that the latter was rarely if ever observed before 1941, when it was noted in an increasing number of prematurely born infants in the United States. In Sweden it began to be observed more frequently in 1944 and 1945. Incubators with special oxygen administration began to be generally used in the United States about 1940 and in Sweden in 1944. The incubators used in Sweden usually supply 45% oxygen, whereas many of the models used in the United States supply between 60 and 80% oxygen. If the oxygen content as such, or the rapid change-over from a high oxygen content to a normal one, is the decisive factor in retrolental fibroplasia, the stress involved in the change will be severer in the American type incubators with their more concentrated oxygen supply.

Folia Cardiologica, Milan

12:93-204 (No. 2) 1953

*Indications and Results of Ligation of Inferior Vena Cava in Some Diseases of Heart and Circulation: Problems of Physiopathology. U. Bracci, L. Garin, L. Lorenzini and D. Tosetti.—p. 93.
Radiologic Study of Pulmonary Artery (Contribution to Body Section Roentgenography): I. In Normal State and in Congenital Dilatations. G. Luzzatti and F. Rovelli.—p. 161.

Ligation of Inferior Vena Cava in Patients with Cardiovascular Diseases.—The inferior vena cava was ligated below its point of junction with the renal veins in 12 patients with cardiac decompensation caused by lesions of the mitral valve and in 3 patients with sclerosis of the pulmonary artery and hypercyanotic angina. The intracavitary pressure in the superior vena cava, the right atrium and right ventricle, and sometimes the inferior vena cava and the coronary sinus were recorded by catheterization of the right heart. Arterial and venous pressures, circulation time, and electrocardiograms were recorded before and after the operation, and capillaroscopy of the hands and feet was also made. Particular attention was given to the anesthesia and the position of the patient during the operation. Patients who for a long time have lain only in an orthopneic position should not be made to lie horizontally on the operative table. These patients were placed at a 35 to 45 degree angle and the plane of the table was slightly rotated to the left. A dose of 0.05 gm. of Etamyl (5,5-isoamylethylbarbiturate) or pentobarbital (Nembutal) was given to the patients three hours before the operation and again one hour later, then 1 cg. of morphine with 0.5 mg. of atropine was given one hour before the operation. Anesthesia was accomplished with thiopental (Pentothal) sodium, curare, procaine and ether. Only one patient died during the operation, but she had been placed in a position which was more horizontal than her usual position and death was ascribed to this fact rather than to the ether. The patients were given oxygen immediately after the operation and anticoagulants on the second day. Venous thrombosis of the legs developed in eight patients, occurring generally between the 3rd and 10th day. It was located in the right leg of four patients, the left leg of three, and both legs of one patient. However, the edema which followed disappeared rapidly and entirely. Bronchopneumonia developed in one patient on the eighth day but it was cured with antibiotics. There was no case of embolism. Results were gratifying in eight patients who have been well for several months; some of them have already returned to their jobs. A mild cardiocirculatory insufficiency is still present in two patients who, however, can walk if they follow a proper diet and proper medication. Four patients improved slightly, but the disease regressed rapidly to the preoperative stage. Two of them have since died. The operation was tolerated well and gave better results in patients with elevated pressures in the right ventricle (even double the normal values) but with normal or slightly increased atrial pressures. It was tolerated less well by patients with elevated atrial pressures. The good results brought about by this operation should not be entirely ascribed to the improved cardiovascular dynamics. A general change in tonus and contractility especially of the arterioles is suggested.

Klin. Monatsbl. für Augenheilkunde, Stuttgart

122:513-640 (No. 5) 1953. **Partial Index**

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New Attempts at Alloplasty of Cornea. G. Sommer.—p. 545.
*Congenital Absence of Tear Secretion and Keratoconjunctivitis Sicca in Children. H. Sjögren.—p. 554.
Fungus Disease of Supporting Structures of Eye. S. Fazakas.—p. 559.
Observations on the Eye Following Treatment of Tuberculous Meningitis with Streptomycin and Isoniazid. A. Obal.—p. 584.
Influence of Dextrose Bath on Pathologically Increased Intraocular Pressure. H. Löhlein.—p. 599.

Congenital Absence of Tear Secretion.—Sjögren reports 14 cases of congenital absence of tear secretion which he found recorded in the literature, beginning with the first case described by Morton in 1844 and ending with a case observed by himself and Eriksen in 1950. The condition is usually of neurogenic origin, that is, it is due to aplasia of the secretory nuclei, or to the fact that the connection between the secretory center and the nerve tracts is lacking now and then in newborn infants. It may be caused by a congenital disturbance in the autonomic nervous system. It is possible that in a few cases aplasia of the lacrimal glands exists. This has not been definitely proved, but if such cases do occur they may perhaps be incomplete forms of congenital ectodermal dysplasia. Thus there seems to be a congenital form of keratoconjunctivitis sicca which differs fundamentally from the form which occurs in adults; in infants there is aplasia, in adults, atrophy.

Lancet, London

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Acetylcholine and Heart Beat. J. H. Burn.—p. 1161.
Surgery in Severe Hypertension: Survey of Results. F. d'Abreu.—p. 1164.
Detection of Weak Rh Antibodies in Maternal Antenatal Sera: Value of Enzyme-Treated Test Cells. F. Stratton.—p. 1169.
Ureteric Transplantation into Isolated Length of Ileum. D. Annis, W. R. Hunter and C. Wells.—p. 1172.
Artificial Bladder. T. Moore.—p. 1176.
Hyperchloraemic Acidosis Following Implantation of Ureters into Isolated Loop of Ileum. A. O. Wilson.—p. 1178.
Replacement of Both Ureters by Ileal Graft. J. Foret and C. Heusghem. —p. 1181.
Herpes-Simplex Hepatitis and Encephalitis in Newborn Twins. N. E. France and M. J. Wilmers.—p. 1181.

Minerva Chirurgica, Turin

8:261-346 (April 15) 1953. **Partial Index**

Diagnosis and Surgical Treatment of Obstructions and Benign Stenoses of Common Bile Duct. A. M. Dogliotti and E. Fogliati.—p. 261.
Two Cases of Anencephaly. A. Foà.—p. 272.
Physiopathology of Arteriovenous Fistula. P. G. Frattini.—p. 273.
Primary Melanotic Carcinosarcoma of Rectum. D. C. Gabetti.—p. 278.
*Surgical Treatment of Elephantiasis Nostras. P. Gagliardi.—p. 283.

Surgical Treatment of Elephantiasis Nostras.—The results of surgical treatment of elephantiasis nostras (chronic streptococcic lymphedema) are far from encouraging. Treatment of this disease should always be individualized, since the results depend on the degree of edema and lymph stasis. Rest, hot baths, massage, elastic bandages, and electrotherapy may prove beneficial when pachydermia has not yet developed. When the disease is complicated by sclerosis, treatment should consist of (1) intensive therapy with antibiotics and sulfonamides against the micro-organisms responsible for the infection in the lymphatics; (2) creation of new channels to eliminate or diminish the lymph stasis; and (3) removal of as much of the sclerotic tissue as possible. The sclerosis will impair the function of the lymphatics that have been spared by the disease and will affect the new pathways that were formed surgically. Handley's operation has given some good results in the treatment of this disease, but Kondoleon's operation has proved superior. It consists in removing large strips of the scarred and thickened aponeurosis so that the skin comes in contact with the deep tissues; connections are established between the superficial and the deep lymphatics and thus the lymph can drain through the lymphatics of the muscular tissue. Although recurrence is unavoidable, the operation is not futile since it brings relief and can be repeated without danger. The author reports his surgical results in two patients with elephantiasis nostras in the legs. The first was a 19-year-old man who had had the disease for two years. Kondoleon's operation was performed on both legs twice in three months. Each time penicillin and sulfonamides were given preoperatively. The patient's condition was improved. A follow-up five years after the last operation revealed that edema was no longer present in the thighs and feet, although it had increased slightly in the legs. He had long since resumed his work as a shepherd and was able to walk and stand for many hours of the day. The second patient was a 20-year-old woman in whom the disease, which involved the right leg only, had appeared at the time of her first menstruation. She was given penicillin and sulfonamides for three days and then Lanz's operation was performed. The size of the leg was diminished, but seven months later edema began to reappear. Kondoleon's operation was then performed and good results were obtained. The patient was well 10 months later and the edema was not present. At the time of writing, more than two years after the operation, the improvement was still present.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

97:1173-1240 (May 9) 1953. **Partial Index**

Recent Experiences with Artificial Kidney. W. Betist.—p. 1179.
Atelectasis Due to Reabsorption After Pulmonary Operations. J. K. Kraan.—p. 1188.
Plastic Surgery in Lesions of Finger Tips. S. T. Woudstra and A. J. C. Huffstadt.—p. 1195.
*Parinaud's Conjunctivitis and Cat Scratch Disease. A. W. C. van Veelen and P. D. Stibbe.—p. 1203.

Parinaud's Conjunctivitis and Cat Scratch Disease.—In 1948 van Veelen and Stibbe observed a 14-year-old girl, who had conjunctivitis, edema of the eyelids, swellings of the left ear and jaw, and enlargement of the regional lymph nodes. The disorder was diagnosed as Parinaud's conjunctivitis, but the etiology remained obscure. The conjunctival secretion was examined for molds, spirochetes, the Corynebacterium diphtheriae and several other organisms, but the results were always negative. Pus from the suppurating lymph nodes was likewise examined for various pathogenic organisms, but here again the tests remained negative, as did also the agglutination reactions for brucellosis, tularemia, typhoid, paratyphoid and typhus, serologic tests for syphilis, the complement fixation test for psittacosis and the search for the virus of venereal lymphogranuloma. In 1952, the girl was subjected to an intracutaneous test with the antigen of cat scratch disease. Since this test resulted in a positive reaction, it was assumed that the attack of conjunctivitis in 1948 was probably caused by the virus of cat scratch disease.

Semaine des Hôpitaux de Paris

29:1721-1782 (May 26) 1953

General Medicine is a Specialty. H. P. Klotz.—p. 1721.
Importance of Morbid Predisposition in So-called Psychosomatic Thyroses. H. P. Klotz and H. Elmaleh.—p. 1724.
Psychoses Related to Unrecognized Endocrine Disorders: Cure by Hormone Therapy. H. P. Klotz and R. Klotz-Valensi.—p. 1727.
*Obesity Does Not Mean Overeating. H. P. Klotz and P. Lumbroso.—p. 1733.
Progressive Scleroatrophy of the Thyroid Gland. H. P. Klotz, C. Sors and J. Avril.—p. 1740.

Obesity and Overeating.—The theory that obesity is merely the result of overeating presupposes that the obese person has normal physiological responses. Overeating is undoubtedly common among the obese, but overeating alone does not cause obesity. The metabolic processes and the changes produced in them by various factors enter into the problem of obesity. The metabolic defect which results in obesity is usually hereditary; it may be sufficient to produce obesity without overeating, or it may become operative only under special conditions, which may be neuropsychic in origin. The weight of a normal person is generally stable; overeating or excessive inactivity may result in weight gains, but when these factors are removed, the weight soon returns to its former level. Moderate dieting will correct physiological overweight of this kind, but in obesity there is a pronounced difference between the ease with which weight is gained and the extreme difficulty with which it is lost. Long continued overeating may transform a normal person into an obese one, and vice versa. The metabolic defect responsible for obesity affects several factors, chiefly tissular and neuropsychic. The disturbance in the adipose tissue, or lipophilia, characteristic of obesity is the result of changes in the cerebral cortex, which controls all the metabolic processes and is the predominant factor in producing appetite, and even hunger. The complex problem of obesity should therefore be reviewed in the light of the adaptive powers of the living body and the activity of the higher nervous system.

Trans. Royal Soc. Trop. Med. and Hyg., London

47:177-260 (May) 1953. **Partial Index**

Reactions Following Neurotropic Yellow Fever Vaccine Given by Scarification in Nigeria. F. N. Macnamara.—p. 199.
Coccidiosis in Man: Experiences in Natal. R. Elsdon-Dew and L. Freedman.—p. 209.
Distribution of Schistosome Ova in Alimentary Tract in Subjects of Bilharziasis. M. Gelfand and W. F. Ross.—p. 215.
Transverse Myelitis Due to Ova of Schistosoma Mansoni. P. H. Abbott and H. Spencer.—p. 221.
Pachyderma: II. Enunciation of Hypothesis of Fat Deficiency Syndrome in Man. J. W. Nelson.—p. 224.
*Out-Patient Treatment of Malaria with Single Dose Intramuscular Chloroquine in Hyperendemic Area in West Africa. D. B. Jelliffe.—p. 235.

Treatment of Malaria with Single Intravenous Injection of Chloroquine.—According to Jelliffe chloroquine diphosphate has only recently come into fairly general use in malaria therapy in many parts of Africa, although a considerable amount of work has been undertaken on the effects of chloroquine in other parts of the world. Forty African children aged from 4 to 27 months, all of whom were clinically sick with malaria (Plasmodium falciparum 30, P. malariae eight, and mixed two) were treated as outpatients with a single intramuscular injection of chloroquine. Parasite clearance and clinical cure followed within two days although in some cases follow-up showed a reappearance of parasitemia after from two to six weeks, due either to reinfection or relapse. The author concludes that chloroquine, given as a single intramuscular injection (5 mg. of base per kilogram of body weight), is a rapidly effective treatment for malaria. No general or local toxic effects were observed. The absence of fibrotic gluteal nodules, sterile abscesses and small areas of chemical muscle necrosis, as seen not rarely in these malnourished, anemic infants following intramuscular administration of quinine, was particularly striking and encouraging.

BOOK REVIEWS

The Basis of Clinical Neurology: The Anatomy and Physiology of the Nervous System in Their Application to Clinical Neurology. By Samuel Brock, M.D., *Professor* of Neurology, College of Medicine, New York University, New York. Third edition. Cloth. $7. Pp. 510, with 124 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1953.

Since 1937 this book has served a most useful purpose in correlating clinical neurology with the basic anatomy and physiology of the nervous system. This edition is brought up-to-date and thus continues to fulfill a real need. A few limited sections have been prepared by other authors, notably, those on electroencephalography and electromyography by Dr. Paul F. A. Hoefer, on electrodiagnostic methods by Dr. Joseph Moldaver, on visual pathways by Dr. Max Chamlin, on cerebral angiography by Drs. Leo M. Davidfoff and Emanuel Feiring, and on sensory extinction by Dr. Morris Bender. The entire book seems to have received the author's careful attention in this revision. There is little to criticize in the book; however, at least two of the illustrations (fig. 68 and 115) are poorly reproduced and should be replaced. The index, although useful, is incomplete. In a cursory examination of it several things were missed, among them the principal arteries of the brain.

Sympathetic Control of Human Blood Vessels. By H. Barcroft, M.A., M.D., M.R.C.P., Professor of Physiology, St. Thomas's Hospital Medical School, London, and H. J. C. Swan, Ph.D., M.B., B.S., Research Associate, Mayo Clinic, Rochester, Minnesota, Number 1, monographs of Physiological Society. Editors: L. E. Bayliss, W. Feldberg, A. L. Hodgkin. Cloth. $3.75. Pp. 165, with illustrations. [Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2]; Edward Arnold & Co., 41-43 Maddox St., London, W.1, 1953.

This interesting book is published as a monograph of the Physiological Society. It presents in condensed form the role of the sympathetic nerves in the control of the blood vessels, particularly those of the muscle and the skin of the extremities. The physiological principles governing use of sympathectomy, norepinephrine and epinephrine, and the adrenergic blocking drugs are well presented, with appropriate illustrations. One chapter is devoted to the pheochromocytomas and another to the vasovagal syndrome. The senior author is an authority with world-wide recognition. The monograph makes available fundamental concepts, principles, and knowledge based upon contributions by authorities in several countries, and it is highly recommended as informative and concise reading for all physicians, medical students, and physiologists. It develops principles directly concerned with the clinical aspects of peripheral vascular disease and methods of study but does not cover differential diagnosis and treatment. The reader is thus given the basis upon which diagnosis and treatment are possible.

An Introduction to Public Health. By Harry S. Mustard, M.D., LL.D., Executive Director, State Charities Aid Association (N. Y.), New York. Third edition. Cloth. $4.25. Pp. 315. The Macmillan Company, 60 Fifth Avenue, New York 11, 1953.

This edition appears 9 years after the second edition and 18 years after the first edition. What originally started to be a textbook for the professional worker in public health has now been redesigned as a textbook and a reference for persons interested in problems of public health but who may not be professionally involved in public health administration. New chapters have been added on mental health and health education, and many of the chapters have been rewritten with the addition of new material and the deletion of old or outdated material.

In attempting to span a broad range of interest, Dr. Mustard has produced a book that is not sufficiently technical to be of interest to the professional public health worker but at the same time contains too much detail to give a clear overview of public health administration to the nonprofessional college student or the citizen who wishes to have some understanding of the public health operations in his community. Much of the quoted data are already out of date, and though the book may give an impression of the magnitude of certain activities it could not be used safely as a current reference. In general, the concepts expressed are standard points of view in the middle course of public health thinking. The descriptions of the various functions in a public health program give a reasonably accurate picture of the average program. "An Introduction to Public Health" should be of interest to most physicians in private practice and to those who are associated with any of the many phases of public health administration. If all physicians would read this volume, the health officer would have a much easier job in developing cooperative relationships with the practitioners of his community.

Lectures on the Scientific Basis of Medicine. Volume I: 1951-52. British Postgraduate Medical Federation, University of London. Cloth. 30s. Pp. 396, with illustrations. University of London, Athlone Press, London [distributed by Constable & Co., Ltd., 10-12 Orange St., Leicester Sq., London, W.C.2], 1953.

This book has been designed to appeal widely not only to busy physicians who have little time to read exhaustively but especially to young research workers, to teachers in the preclinical and clinical sciences, and to clinicians who will become consultants. The subjects included illustrate the methods by which new and fundamental knowledge has been acquired; some of the topics contain fresh observations; and others consist chiefly of matter that has been recently published elsewhere, and still others review recent progress in a particular field against a background of earlier advances. Beginning with a discussion of the scientific approach to medical research, the text covers a series of highly informative, although dissimilar, subjects; for example, lability of blood pressure, effects of hemorrhage on the cardiovascular system in man, tissue response to injury, the physiological basis of visual sensation, antibacterial immunity, antibodies, normal and pathological physiology of the kidney, aging, growth of the human at the time of adolescence, and biological action of radiation. This book should prove very helpful.

Pathology in Surgery. By Edwin F. Hirsch, Ph.D., M.D., Director of Henry Baird Favill Laboratory and Pathologist of St. Luke's Hospital, Chicago. Cloth. $10. Pp. 474, with 390 illustrations (photography by Inez M. Porter). Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1953.

Dr. Hirsch states: "Readers should remember that this text is not one in either general or special pathology, although both are fundamental." The volume was written not only for pathologists but for surgeons and surgical residents, even surgical residents in the various specialties. It may also be valuable to medical students who have had some training in general pathology. One is amazed at how much material the author has been able to include in this small monograph. The material from 11 separate fields includes: the respiratory system, the digestive system, the urinary system, the female reproductive system, the male reproductive system, the nervous system, the liver, gallbladder, and spleen, the ductus glands, and the skin. The index and the illustrations are excellent. The presentations are brief and concise, but adequate, and the amount of material included in the discussion is excellent.

For anyone who wishes a ready reference work in surgical pathology, this volume will prove useful. It will be useful to residents, for whom it was primarily prepared, and to men who are attempting to prepare for board examinations. Because of its excellent illustrations, it will give the reader a clearer concept of the lesion in which he has an interest.

These book reviews have been prepared by competent authorities but do not represent the opinions of any official bodies unless specificially so stated.

QUERIES AND MINOR NOTES

SCHOOL CRAYONS AND PAINTS

To the Editor:—*What paints and crayons are safe for elementary school children to use in their school work and at home? Is turpentine a safe paint thinner and brush cleaner? How dangerous is it if splashed in the eyes?*

L. C. N. Wayland, M.D., Santa Barbara, Calif.

Answer.—Obviously school art crayons and paints should not contain lead, cadmium, benzol, methyl alcohol, carbon tetrachloride, or kindred agents. To some extent, the natural coloring agents are less harmful than the synthetic, but there are exceptions. Wax crayons colored with aniline dyes somewhat frequently cause methemoglobinemia, but this is chiefly due to chewing of the waxes rather than to proper school use. The paranitraniline colors are notable offenders. One difficulty springs from the fact that many art materials are sensitizers and on a somewhat unpredictable basis. Even the sizing materials and fixatives common to art work sometimes serve as sensitizing agents. The pigment in some colored pencils, such as the methyl violet in indelible pencils, may serve as a direct damaging agent to the eyes, that is, particles of methyl violet from indelible pencils entering the eye are peculiarly damaging to the cornea. Freedom from exposure in the art classroom is more a matter of supervision than of materials. Turpentine as mentioned serves as a good example. Ordinary turpentine is a toxic agent, a skin irritant, a sensitizer, and readily flammable. Intelligent supervision may eliminate all these threats. Both turpentine and rubbing alcohol, which chiefly is isopropyl alcohol, are eye irritants, the former being the greater offender. Brushes, if stored in a wet medium, should be kept in raw linseed oil. Safety in the art room is best provided through instructor supervision; however, certain producers of art supplies for elementary school use seek to avoid materials that may injure health.

POLYPOID TUMOR OF STOMACH

To the Editor:—*Could polypoid tumors of the cardiac end of the stomach rupture during the lifting of an object weighing 200 lb. (90.7 kg.) and could such a rupture result in slow bleeding, anemia, and death two months later?*

M.D., Massachusetts.

Answer.—It is possible that heavy lifting could result in rupture of a polypoid tumor in the cardiac portion of the stomach and cause progressive bleeding and anemia with subsequent death. It would, however, be difficult to prove that this has occurred, since it is doubtful that the muscular contractions incident to heavy lifting would produce more trauma to a tumor in the cavity of the stomach than would be produced daily by the ingestion of food and drink and by gastric peristalsis. A direct blow to the abdomen would be much more likely to produce such rupture or disorganization of a friable tumor mass.

CONGENITAL NYSTAGMUS

To the Editor:—*Are there any new drugs that are of help to patients with congenital nystagmus?*

Z. W. Gramling, M.D., Orangeburg, S. C.

Answer.—There is no treatment available for congenital nystagmus. Certain drugs, such as barbiturates given intravenously, may cause temporary cessation of nystagmus on direct forward gaze, but these same drugs also cause the development of nystagmus on lateral gaze. Congenital nystagmus, usually inherited, should be differentiated from so-called ocular nystagmus, which is the result of defective vision dating either from birth or from the occurrence of some ocular lesion before the development of fixation. Adequate correction of vision in the latter group may be of some benefit but will not control the nystagmus once it has developed.

FATALITIES ATTRIBUTED TO BOXING

To the Editor:—*I would appreciate information on the number of deaths attributed to boxing and on the pathological findings associated with these fatal injuries.*

Henry Fisketti, M.D., Duluth, Minn.

Answer.—Complete and accurate morbidity and fatality statistics of injuries and deaths attributable to boxing leave much to be desired. The answer to your questions on the number and causes of death in this sport is of necessity subject to inherent discrepancies, debatable interpretations, and errors of omission. In a relatively complete world survey of all fatalities in boxing, professional and amateur, including the military, from 1946 to 1952, however, it is estimated that about 2,200,000 bouts have taken place. Roughly 50% of the deaths in the ring during these same years occurred outside continental United States. The following table is an annual breakdown of these mortality statistics.

Year	Total Deaths	Professional	Amateur
1946	14	12	3
1947	10	5	5
1948	14	9	5
1949	19	12	7
1950	11	7	4
1951	12	3	9
1952	7*	3	4

* Deaths as of July, 1952.

For a more detailed analysis of this material, particularly the pathophysiological aspects of the causes of deaths reported above, the following references may be consulted: (1) Jokl, E.: The Medical Aspects of Boxing, South Africa, J. L. Van Schaik, Ltd., 1949; (2) Symposium on the Medical Aspects of Boxing, sponsored by the New York State Athletic Commission, New York, July 25-26, 1952, R. Christenberry, commissioner; (3) Christenberry, R. K.: Boxing in New York, Correspondence, *J.A.M.A.* **151**:317 (Jan. 24) 1953; and (4) Gonzales, T. A.: Fatal Injuries in Competitive Sports, *J.A.M.A.* **146**:1506 (Aug. 18) 1951.

BLACK DISCOLORATION BENEATH GOLD RING

To the Editor:—*After wearing a 14 carat gold ring for six months, a black discoloration of the skin under the ring and on the adjacent fingers developed in a patient. The salesperson told him that this was due to "acidity of his system." Is this a logical explanation?*

M.D., Washington.

Answer.—Fourteen carat gold ordinarily is alloyed with copper, although in white gold the chief alloy agent is nickel. Staining from white gold is not likely to occur. Both gold and copper are slightly soluble. Some persons secrete sweat containing traces of sulfur. A larger number of persons engage in work involving exposure to sulfur compounds that lend themselves to sulfide formation. The black discoloration probably is due to the presence of a metallic sulfide, formed as the result of action between the sulfur and metal from the ring. Such small amounts are involved that damage is not likely to be produced, and the main problem is a cosmetic one, although an allergy may be established. Certain jewelers' lacquers, when baked onto a gold object, may prevent this discoloration, not permanently but for a long time.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

TREATMENT OF MENOPAUSAL SYMPTOMS

To the Editor:—*A patient, 51 years of age, has severe menopausal symptoms, including hot flashes and nervousness. In her last menstrual period, which occurred five months ago, the flow was scanty. Nine years ago she had a radical mastectomy for carcinoma of the right breast. There is no evidence of recurrence. Is the use of estrogen therapy contraindicated? If not, are natural or synthetic estrogens more advantageous?*

W. P. Skirball, M.D., Sandusky, Ohio.

Answer.—Entirely apart from the history of carcinoma of the breast apparently cured by mastectomy nine years ago, and applying to all cases of menopausal vasomotor symptoms, the therapeutic employment of estrogens should be held to the minimum required for symptomatic relief; they should be used orally and not hypodermically and should be administered intermittently, only when and if symptoms are severe. Continuous estrogen therapy carries with it the hazard of inducing postmenopausal bleeding and of prolonging the menopause by retarding the inevitable pituitary-ovarian readjustment. There is no evidence that moderate and intermittent estrogen therapy would carry with it any hazard of inciting cancer recurrence in a patient like the one described. Some physicians claim that the natural hormones bring about a greater sense of well-being than do the synthetic hormones, but this consultant has not observed any noteworthy difference. Should one wish to avoid even a speculative hazard in such cases, testosterone may be used, since it relieves the vasomotor symptoms, although not as effectively as the estrogens.

BLURRED VISION

To the Editor:—*A young man complains that his eyes "blur" at times. I have been unable to find this symptom mentioned in any book on ophthalmology. Can you advise me as to the causes of this condition?*

William E. Stevens, M.D., San Francisco.

Answer.—Indistinct, blurred, or obscured distant vision in children and in adults may be caused by uncorrected hyperopia, uncorrected or increasing myopia, opacities of the lens, degeneration of the macula, nystagmus of infantile origin, or the toxic action of drugs or bacteria on the retina and optic nerve as well as by the toxic action of tobacco.

POST-HERPETIC NEURALGIA

To the Editor:—*What is the proper treatment for the chronic neuralgia that follows herpes zoster?*

Harry F. Watt, M.D., Ocala, Fla.

Answer.—There is no treatment that will with certainty relieve post-herpetic neuralgia. Posterior root section, chordotomy, and sympathectomy have been tried in a number of patients but have not produced relief. A few cases have been reported in which removal of the skin involved by herpetic lesions or complete circumscription and undercutting of the involved skin in stages has given relief. Such a procedure may be tried in a case sufficiently severe to warrant such drastic treatment, but it must be realized by both the surgeon and the patient that there is no certainty of a cure.

BRAIN INJURIES

To the Editor:—*I am curious about two conditions that accompany certain types of brain injuries. The first is a low diastolic blood pressure, sometimes 0 mm. Hg, that occurs in the presence of a normal systolic pressure. The other, which I have noted rarely, is the occurrence, during patella reflex examination of one leg, of a "jerk" in the other leg. What is the physiological basis for these findings?*

M.D., South Carolina.

Answer.—A lowered diastolic pressure is not commonly seen in persons who have had an intracranial cerebral injury and is not to be correlated with such an injury. It is not clear what is meant by the statement that the opposite leg "jerks" when elicitation of the patella reflex is attempted. To answer this question it would be necessary to know which muscles contracted to produce the jerk observed. In many instances in which the tendon reflexes are hyperactive, percussion of one patellar tendon will cause a contraction of the adductor muscles of the opposite thigh and cause that thigh to jerk medially. If this is the response to which the inquirer refers, the explanation is that the blow on the knee is transmitted upward by the femur to the pelvis, and this blow transmitted to the pelvis on one side causes stretching of the adductor muscles of the opposite thigh, which respond by contracting. All tendon reflexes are, in fact, stretch reflexes and are elicited whenever the affected muscles are stretched suddenly.

POLIOMYELITIS AND TONSILLECTOMY

To the Editor:—*A child who had poliomyelitis three and one-half years ago is now in need of a tonsillectomy. Would there be any danger of activating the virus in her throat by the operation, with the possible result of the occurrence of bulbar paralysis?*

Samuel Newman, M.D., Danville, Va.

Answer.—All available evidence indicates that infection by the virus of poliomyelitis is of limited duration. Horstmann, Ward, and Melnick (*J. Clin. Investigation* 25:278, 1946) studied the persistence of excretion of virus in the stools of 61 patients. In only one was virus found as late as 12 weeks after onset of the disease. Tests for virus in throat swabs have revealed its presence there for an even briefer period, and no instance has been recorded of the presence of virus for as long as three and a half years. There is, accordingly, no reason to believe that a tonsillectomy at this time may activate virus remaining from the earlier infection. The patient referred to is presumably immune to at least one of the three known types of poliomyelitis virus (the one responsible for his earlier attack). The danger of the occurrence of poliomyelitis following tonsillectomy should, therefore, be somewhat less than it would be if he were susceptible to all three types.

SINUSITIS IN CHILDREN

To the Editor:—*What is the accepted treatment for sinusitis in children between the ages of 2 and 10 years? Is antrostomy done routinely in children? What is the indication for it?*

Hans M. Schapire, M.D., Mattoon, Ill.

Answer.—Treatment for sinusitis in children between the ages of 2 and 10 years is essentially conservative. In the case of acute purulent sinusitis, treatment is both general and local. Bedrest, especially if fever is present, is valuable if the child's room is properly ventilated, with an approximate temperature of 70 F and a humidity of 40 to 50%. Systemic use of antibiotics or chemotherapeutic agents in appropriate dosage for children is exceedingly effective in the severer forms of acute sinusitis. As in the case of adults, medical treatment for sinusitis in children consists mainly in the general measures that favor restoration and maintenance of normal nasal and sinal physiological states. Ventilation of the nasal and sinal structures is effected by the rational use of 0.25 to 0.5% ephedrine sulfate in isotonic sodium chloride solution or any other suitable nasal vasoconstrictor that can relieve nasal congestion, improve nasal ventilation, and, when judiciously employed, aid in promoting adequate drainage from paranasal sinuses by opening obstructed ostia. Treatment for the chronic forms of sinusitis in young children includes such measures as irrigation, displacement therapy, and the elimination of possible allergic factors and obstructing hypertrophic adenoid tissue. Intranasal antrostomy should not be done routinely in children. Only in long-standing, resistant cases, and only in the event well-established measures have failed, should consideration be given to a more permanent form of drainage by means of intranasal antrostomy. A great deal depends on the ability of the physician to evaluate accurately the total problem, including the child's environment and background, and to apply therapy accordingly.

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MILITARY MEDICINE

CHAIRMAN'S ADDRESS

Richard A. Kern, M.D., Philadelphia

A year ago, when the Section on Military Medicine held its first meeting as an established section of the Scientific Assembly of the American Medical Association, the most significant presentation on the program was the address of the chairman. At that time Dr. Melvin Casberg clearly defined the term military medicine, and outlined the functions and purposes that this section should serve. He also traced the evolution, in the office of the Secretary of Defense, of the Armed Forces Medical Policy Council. This was a most important development as far as the medical profession was concerned, since it provided for the first time at that high level an agency for the general direction, coordination, and control of the medical services of the three military departments and for a practical approach to the common problems of military and civilian medicine. All future chairmen of this section are indebted to Dr. Casberg for this fine chart of past accomplishment, current conditions, and future progress. The task of the present chairman is the easier, since his predecessor has piloted the ship from its very launching through the narrower reaches of the upper channel. Nevertheless, he must log briefly the course made good and the existing and foreseeable hazards, before turning over the wheel to his relief.

Military medicine is the application of sound medical principles to the prevention and management of injury and disease under the conditions imposed by war. These conditions bring into play factors of environment, of numbers of patients, and of administration that differ sharply from those of civilian medical practice. Military medicine further includes the development of new applications of basic medical principles to meet the changing conditions of modern warfare. The field of military medicine therefore involves a never-ending interchange of thought and practice between scientific medicine (with which all physicians are concerned) and the science of war (which concerns the military professions, medical as well as line and other staff corps). This section offers a useful channel through which such an interchange of information may take place in both directions. Medical scientists can here find a forum to present medical advances that have special significance for military uses. Military scientists can here discuss the solutions of new problems posed by changing techniques of warfare.

It would, however, be a narrow concept of the potential usefulness of this section to think of it only in terms of this annual session, with its papers and exhibits. The great majority of the members of this section are civilian physicians who are also medical reservists of the armed forces. As such, we have a double interest and function. We seek and find here the chance to learn new things in military medicine from our colleagues who have made military medicine their life's work; but we should also disseminate that new knowledge and interpret our field to our civilian colleagues, and this we must do all through the year and throughout the country. This does not mean that we should organize more sections on military medicine at state and county levels. That would defeat our purpose of spreading our information as widely as possible. On the contrary, both officers and members of this section should offer their services (not wait to be asked) to program committees of state and county medical societies and be willing to accept such assignments whenever possible. They might take the form of arranging a whole program on a given occasion, but in general they might better be single presentations as part of almost any kind of meeting, so as to reach as large a number of physicians as possible. This section could achieve its greatest usefulness by the sustained fostering of such a program.

Our civilian colleagues have important reasons for welcoming a steady flow of information about military medicine. In case of war, they would constitute the vast proportion of the medical officer personnel of the armed forces. Many physicians would therefore be helped by some foreknowledge of military medicine, even if at this moment they do not hold reserve commissions. But military medicine has a wider potential application, for the conditions of major disaster are quite similar to those of actual warfare. Practically all physicians, especially

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Read before the Section on Military Medicine at the 102nd Annual Meeting of the American Medical Association, New York, June 3, 1953.

those who live in target areas of potential attack by an enemy, should therefore know the basic facts of military medicine and should be kept abreast of major developments.

This suggests a further need, namely, some instruction in the medical principles of civil defense and in military medicine in all our medical schools. This does not mean another department to be forced into an already crowded curriculum, nor does it mean a few lectures casually slipped in toward the end of the senior year. It does call for a sustained program of instruction throughout the four years, integrated with the existing framework of teaching of the usual medical subjects, and carried out by teachers fitted by background and continued training so to do. Above all, it calls for the fixing, by the dean, of the responsibility for such instruction in a suitable committee of the faculty. Therefore, the pilot programs that were begun this year in five medical schools under the aegis of the Committee on Medical Education for National Defense (MEND) should be watched with great interest. Preliminary reports are highly favorable.

PROCUREMENT OF MEDICAL PERSONNEL

Up to this point the discussion has dealt with military medicine, but it is impossible to separate that topic wholly from the subject of those who practice it, the medical officers. It is now 13 years since the bulk of medical service to the armed forces was provided by a permanent staff of military career physicians. Today, two-thirds of all medical officers on active duty are reservists. It may be a score of years or more before that proportion is reversed. The procurement of both types of medical officers is therefore a matter of the greatest personal interest and concern to all physicians.

We are interested in the building up of the several permanent medical corps to the point where they will constitute two-thirds of the number needed for the present expanded military establishment. This means doubling the present number on the rolls. The significance of this to civilian practice becomes clearer when it is remembered that every permanent medical officer would, over the next six years, replace four reservists.

We are interested in a program of inducting physicians from civilian ranks that would be fair to them, that would maintain an adequate medical service to the public, and that would not unduly dislocate an orderly scheme of postgraduate training. We are interested in the efficient utilization of medical personnel to the fullest extent and within the scope of professional qualifications that circumstances allow, and for only such purposes as justify the diversion of physicians from civilian to military practice. This involves the freest reciprocal use of facilities and personnel between the several services. It does not mean, in my opinion, a single medical corps for all services. In the armed forces a physician is also an officer of Army, Navy, or Air Force. It is no more logical to make a physician an officer of all three than it would be to make any other type of officer polyvalent. It is hard enough, in the time available, to make one kind of officer out of most civilian physicians.

The major problems relating to medical personnel present themselves in the Department of Defense, where until April 1, 1953, they were in the province of the Armed Forces Medical Policy Council. The replacement of that council and the reorganization of the agency dealing with matters of health and medicine in the purview of the Department of Defense will be discussed at this session by the man best qualified on every count to do so, the erstwhile chairman of the Armed Forces Medical Policy Council and now the assistant to the Secretary of Defense (health and medical), Dr. Melvin A. Casberg. The outbreak of war in Korea two years ago provoked the precipitate need for, and the adoption of, a program to provide physicians for the armed forces. This was the "doctor-draft" law (public law 779). The law expired on June 30, 1953, but the need for this law continues. Into its replacement has gone an unprecedented amount of cooperative study and planning by many representatives of the widest range of interested groups. It is hoped that the new law will, as Dr. Casberg expressed it, "step as lightly upon as few toes as possible."

The recruitment of an ample number of physicians who would make a career of military medicine presents an as yet wholly unsolved problem. The virtual stopping of all accessions to the permanent services since the onset of the Korean episode, as contrasted with a fairly constant inflow during many preceding years, strongly suggests that its major cause lies in the "freeze" in effect since 1951, which precludes the acceptance of resignations from the regular services except under conditions of extreme hardship. Young physicians, and even more so their wives, will not enter a service from which, should they not find it to their liking, there is no means of escape. It is therefore highly desirable that they be offered provisional first commissions on a three year basis. An additional inducement might well be offered by the scholarship plan, approved in principle by the Armed Forces Medical Policy Council and reported to this session a year ago by Dr. Casberg. It involves the subvention of acceptable students in medical schools, on nomination by their deans, with obligated military service year for year, and with an escape clause on the basis of monetary refund.

I wish to add to that of others my own disapproval of a device of recruitment that some have suggested; the creation by the government of one or more medical schools to provide physicians for the military and perhaps other federal services. Dr. Casberg last year stressed the obvious dangers: medical inbreeding, a narrowed outlook, an unwarranted self-satisfaction, a loss of contact between civilian and military medicine, and the formation of a medicomilitary caste. The strength of the armed forces medical profession today is rooted in the diversified educational resources of its members. On their diversified origins is also based the solidarity of the military medical profession with the civilian. Each physician of the regular services has a score or more of classmates in civilian practice who see in him not only a bond of professional fellowship with those services but a guarantee of the basic excellence and soundness of viewpoint of the military medical profession. All this would be jeopardized by a separate federal medical school system.

We are not a military-minded people. Many of us are frankly suspicious of military establishments as tools of aggression. As a result, we have found ourselves tragically unprepared at the outbreak of wars. In 1861, Lincoln dared call for only 90-day volunteers. In the same year in Georgia, Gov. Joe Brown raised militia to serve only within that sovereign state, a policy that he continued in succeeding years to the detriment of the Southern cause. Yet, in 1863, he was reelected by the handsomest of majorities. After each war we have demobilized with unseemly haste, leaving to a few career men the thankless task of looking to our defenses.

The settlers of colonial and frontier days had a more realistic viewpoint. In their experience, war was not heralded by formal declaration, and the cessation of hostilities meant only an armed truce. Therefore, the flintlock musket, loaded and primed, was always hung over the mantel to keep the powder dry. That custom was even safeguarded by the Constitution in the second article of the Bill of Rights. The whole world is in much the same state today. Our hope of national survival rests on being prepared to meet any attack. An adequate trained reserve is the keystone of that preparedness. The chief reason for the existence of this section is to assist in the continued training of our medical reserve. Let us all, therefore, rededicate ourselves to the fulfillment of that purpose.

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CEREBRAL EDEMA AND ITS RELATION TO BARBITURIC ACID POISONING

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The clinical courses of patients who have undergone severe episodes of anoxia are similar. Severity of symptoms and pathological changes depend on the amount of oxygen supplied to the vital organs, the ability of the vital organs to utilize the available oxygen, and the susceptibility of the person to anoxic insults.

Courville[1] gave a complete and classic description of the clinical course and pathological findings in persons who had suffered acute oxygen lack. World War II stimulated interest and investigations in respiratory and circulatory physiology because of the need for high altitude flying. This more than any other factor stimulated a widespread interest in oxygen demand and supply. It changed the pattern of our thinking and emphasized the disastrous results of even mild anoxia. We began to understand that even slightly diminished oxygen tension could cause mental confusion and unconsciousness and also that severer lack of oxygen could result in death within a comparatively short time. We can now review our clinical experiences with a clearer concept of the results of tissue anoxia from any cause.

Lucas[2] reported on an experimental and clinical study of the results of anoxia on the central nervous system. He recorded the effects of mild and prolonged anoxia on the brains of animals and the effects of anoxia on the human brain. Rats survived only one-half to one hour in an atmosphere containing 3% or 4% oxygen. As the oxygen concentration was increased the survival time lengthened, until animals kept in an atmosphere of 9% oxygen survived approximately three days. Animals were then placed in an atmosphere of 9% oxygen for seven hours per day. This group survived for about 9 or 10 days. Microscopic examination of brain tissue taken from animals that died during the experiments showed very little, but, as the anoxia became more prolonged, evidence of damage appeared. This consisted of destruction of nerve cells and loss of Nissl staining properties. The most striking evidence of cell damage was loss of staining qualities of the large pyramidal cells and their eventual disappearance. Small round cells became more deeply stained, more irregular in outline, and shrunken in appearance. A great increase in the number of capillaries was observed throughout the brain. This report indicates that prolonged mild anoxia, in animals at least, can cause severe damage to the brain and that the effect is cumulative.

Seldon and associates[3] have postulated that cerebral edema might be responsible for postanesthetic encephalopathy and have suggested this as a basis for rational treatment. They gave the results of treatment of cerebral anoxia by administration of human serum albumin. Lucas[4] stated that the earliest change in the anoxic brain is an intracellular edema. If this is reabsorbed readily the cell recovers, but if it persists then by purely mechanical means oxygen will be denied rapid access to the cell, so that the anoxia becomes worse and a vicious circle is established that leads to cellular death. He states that withdrawal of fluid from the brain by osmotic means is the basic principle underlying treatment of cerebral edema. This can best be done by use of concentrated human serum in a dose not exceeding 50 ml. per hour, for too rapid dehydration may produce convulsions.

During the last decade the problem of managing patients with acute barbiturate poisoning has grown steadily. The stress of modern living in a highly competitive and uncertain world has led many to seek permanent escape from seemingly insurmountable problems. Barbiturates have claimed their share of these unfortunate victims. The number of deaths from barbiturate poisoning each year probably cannot be determined accurately. Isbell[5] estimates 1,500 deaths per year in the United States, an 8% mortality of all persons

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Human serum albumin used in this study was furnished by the American National Red Cross through Dr. Louis K. Diamond.

[1] Courville, C. B.: Untoward Effects of Nitrous Oxide Anesthesia with Particular Reference to Residual Neurologic and Psychiatric Manifestations, Mountain View, Calif., Pacific Press Publishing Association, 1939.

[2] Lucas, B. G. B.: Anoxia and the Central Nervous System: An Experimental and Clinical Study, Thorax **1**: 128 (June) 1946.

[3] Seldon, T. H.; Faulconer, A., Jr.; Courtin, R. F., and Pino, D. M.: Postanesthetic Encephalopathy: The Postulation of Cerebral Edema as a Basis for Rational Treatment, Proc. Staff Meet., Mayo Clin. **24**: 370 (July 6) 1949; correction, ibid. **24**: 404 (July 20) 1949. Seldon, T. H., and Faulconer, A. Jr.: Cerebral Anoxia During Anesthesia: Prognostic Significance of Electroencephalographic Changes, unpublished data.

[4] Lucas, B. G. B.: Some Observations on Anoxia, Anesthesiology **12**: 762 (Nov.) 1951.

[5] Isbell, H.: Acute and Chronic Barbiturate Intoxication, TB 10-76, Veterans Admin. Tech. Bull. (Aug. 15) 1951.

with barbiturate poisoning. Reed, Driggs, and Foote[6] reported on 209 persons treated between 1940 and 1949, with a mortality of 13.4%. They reported a later series of 91 cases with a mortality of 5.5%. These figures represent the results obtained from standard therapy in well-organized services. The mortality figures probably are higher on a national basis.

The treatment of barbiturate intoxication has become fairly standardized, one or a combination of the analeptic drugs being employed along with general supportive therapy. The drugs used most commonly are picrotoxin, amphetamine, caffeine, pentylenetetrazol (Metrazol), nikethamide (Coramine), with picrotoxin the most widely used. Mousel and Essex[7] found that the analeptics were not only useless but actually harmful in treatment of barbiturate overdose. Schmidt[8] wrote, "Direct studies of the oxygen consumption of the brain in situ have shown that cerebral metabolic activity runs parallel to cerebral functional activity and that convulsants may lead to cerebral anoxia (with all its consequences) because they increase oxygen demand beyond the available supply." Reed, Driggs, and Foote[6] reported several deaths among patients with cardiac arrhythmia who had received fairly large doses of picrotoxin, amphetamine, and caffeine, or a combination of these drugs.

Fisher, Walker, and Plummer[9] found that in dogs receiving pentobarbital by mouth the maximum blood concentration was reached within two hours of ingestion and remained constant for several hours. At 6 hours the blood concentration began to decrease, and at 12 hours the blood concentration had fallen to less than 50%. This pattern is probably similar with ingestion of any of the short-acting barbiturates. Why then do patients undergo prolonged periods of deep depression ending either in death or slow recovery? This condition must be ascribed to cerebral edema prolonging the anoxia instead of the original insult or prolonged action of the drug.

TABLE 1.—*Therapy and Clinical Course in Barbituric Acid Poisoning (Case 1)*

Time	Therapy	Reflexes: Biceps	Reflexes: Knee	Reflexes: Ankle	Area of Cyanosis	Blood Pressure (Mm. Hg)	Pulse (Beats Per Minute)	Respiration (Per Minute)	Other Signs
April 3, 1949									
3:15 p.m.	Oxygen, 1,000 cc. 5% glucose in isotonic sodium chloride solution intravenously	0	0	0	Nails	100/60	112	28	Withdrawal to pinprick
3:25	1 cc. picrotoxin intravenously	0	......	....	Nails	......	...	..	
3:35	2 cc. picrotoxin intravenously	....	......	....	Nails	......	116	28	Slight twitching
4:00	....	++	+++	++	Nails	110/50	120	..	Intermittent twitching
4:15	2 cc. picrotoxin intravenously	++	+++	++	Nails	......	...	..	Clonus bilaterally
4:30	Lumbar puncture	++	+++	++	Nails	......	120	..	No response to pain
4:45	3 cc. nikethamide (Coramine) intravenously	++	+++	+	Nails	......	130	32	Twitching of nose
5:00	300,000 units of procaine penicillin G (Crysticillin) in 1,000 cc. 5% glucose in isotonic sodium chloride solution intravenously	++	+++	+	Nails and lips	110/60	124	28	Muscles spastic, abdomen hard
6:00	500 gm. caffeine intramuscularly	++	+++	+	Nails and lips	......	...	30	
7:00	2 cc. nikethamide (Coramine) intravenously	++	+++	+	Nails and lips	110/50	...	32	Hyperventilation
8:00	....	++	+++	+	Nails and lips	......	...	..	Fever rising
9:00	2 cc. picrotoxin intravenously	L +, R ±	0	0	Nails, increased	......	120	36	Temperature 104 F, incontinent urine
10:00	2 cc. epinephrine (Adrenalin) intramuscularly	0	0	0	Nails	100/50	...	36	Urticaria
April 4									
3:15 a.m.	2 cc. picrotoxin intravenously	....	......	....	......	......	...	Labored	
10:00	2 cc. picrotoxin intravenously	0	0	0	0	110/60	130	36	
12:00 p.m.	....	0	0	0	0	160/70	140	36	
2:00	Bronchial aspiration, 1,000 cc. serum albumin in 5% glucose and isotonic sodium chloride solution intravenously	....	......	....	......	......	...	..	
3:00	....	++++	+++	+++	Nails	118/70	130	Easier	Muscles spastic, bilateral clonus
April 5									
1:00 p. m.	....	....	......	....	......	......	...	..	Active corneal reflexes
2:00	....	....	......	....	......	......	...	..	Voluntary motion of eyes, face, and head

On the supposition that cerebral edema is probably responsible for the severe complications frequently seen in barbiturate poisoning, a therapeutic plan has been formulated for the treatment of these patients with 25% salt-poor human serum albumin. Three patients with severe barbiturate intoxication have been successfully treated since 1949. All were treated with analeptic drugs before the serum albumin was administered, and in each instance the analeptics failed to improve the patient's condition.

REPORT OF CASES

CASE 1.—A 25-year-old nurse was admitted to the hospital at 3:15 p. m. on April 3, 1949. She had last been seen in a conscious condition at 9:00 p. m. the previous day. At 11:00 a. m. on the day of admission she was found in a comatose condition. Pentylenetetrazol was administered in the home with no clinical response other than coughing. On admission her blood pressure was 100/50 mm. Hg, pulse rate 112 per minute, and the skin was pale and cool; the pupils were approximately 3 ml. in diameter, were uniform, and reacted to light. Physical examination showed no corneal, biceps, triceps, knee, ankle, or Babinski reflexes. Her body temperature was 97.8 F. The blood sugar level was 116 mg. per 100 cc. The therapy and clinical course are shown in table 1.

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[6] Reed, C. E.; Driggs, M. F., and Foote, C. C.: Acute Barbiturate Intoxication: A Study of 300 Cases Based on a Physiologic System of Classification of the Severity of the Intoxication, Ann. Int. Med. **37**: 290 (Aug.) 1952.

[7] Mousel, L. H., and Essex, H. E.: An Experimental Study of the Effects of Respiratory Stimulants in Animals Under Pentothal Sodium Anesthesia, Anesthesiology **2**: 272 (May) 1941.

[8] Schmidt, C. F.: Recent Developments in Respiratory Physiology Related to Anesthesia, Anesthesiology **6**: 113 (March) 1945.

[9] Fisher, R. S.; Walker, J. T., and Plummer, C. W.: Quantitative Estimation of Barbiturates in Blood by Ultra-Violet Spectrophotometry: II. Experimental and Clinical Results, Am. J. Clin. Path. **18**: 462 (June) 1948.

At 2:00 *p. m. on April 4, her respirations were very labored* and caused loud bubbling sounds. A large amount of thick, brown material was aspirated by bronchoscope. Her color appeared slightly improved, and the body temperature was 105.8 F by axilla. An intravenous injection of 100 cc. (25 gm.) of salt-poor human serum albumin was given. Alcohol rubs had no effect in lowering body temperature. The patient was then packed in chipped ice, one-half the body being covered at a time. Her temperature dropped promptly to 102.2 F, and the ice packs were removed. Four hours later the temperature went up to 103.8 F by axilla, and ice was once more applied. The temperature dropped sharply to 101.2 F. At noon on April 5, the patient was still comatose. Deep tendon reflexes were hyperactive, blood pressure was 124/70 mm. Hg, pulse rate 120, and respirations 28 per minute. Frequent tracheal suction was carried out with the use of a catheter and occasionally, a bronchoscope. At 1:00 p. m. corneal reflexes were present for the first time, and the deep tendon reflexes were hyperactive. Tests for bromides and barbiturates in the blood were negative. At 2:00 p. m. the patient began showing signs of voluntary activity. She was given 1,000 cc. of 10% dextrose solution intravenously. Bronchoscopy was performed at 6:00 p. m., and a large quantity of yellowish mucoid material was removed. At 11:10 p. m. she was showing more signs of voluntary activity, trying to get out of bed, coughing actively, and attempting to talk. By early morning of April 6, she was rational and admitted having taken a large quantity of barbituric acid, although the specific drug and the quantity taken were not determined.

TABLE 2.—*Therapy and Clinical Course in Barbituric Acid Poisoning (Case 3)*

Time	Therapy	Blood Pressure (Mm. Hg)	Pulse (Beats per Minute)	Respiration (Per Minute)	Other Signs
July 30, 1952					
3:00 p.m.	3 cc. pentylenetetrazol (Metrazol) intramuscularly	120/70	120	30	Deeply comatose, cyanotic, rectal temperature 103 F, respiration rapid and stertorous
6:00	3 cc. picrotoxin intravenously	....	...	..	Deep tendon and superficial reflexes absent
6:30	485 gm. caffeine in sodium benzoate intravenously	....	...	..	
6:50	3 cc. picrotoxin intravenously	....	...	..	
7:45	3 cc. picrotoxin intravenously	....	...	..	
8:20	3 cc. picrotoxin intravenously	....	...	..	
8:22	1 cc. 1:1,000 epinephrine (Adrenalin) intramuscularly	....	...	..	
8:30	3 cc. picrotoxin intravenously	....	...	..	
8:50	1 cc. 1:1,000 epinephrine (Adrenalin) intramuscularly, oxygen by nasal catheter	86/60	116	24	
8:55		98/60	...	..	
9:05	3 cc. picrotoxin intravenously	....	...	..	
9:35	Oxygen by tracheal tube	90/60	100	..	
9:50		86/60	100	..	
10:15	500 cc. salt-poor human serum albumin, intravenously	....	...	..	
10.50		118/70	106	24	
11:15		108/70	...	..	
July 31					
5:30 a.m.		....	...	..	Deeply comatose
6:45		130/90	...	..	
8:40	500 cc. salt-poor human serum albumin intravenously	135/100	108	24	7 mg. barbiturates per 100 cc. urine
9:00		136/95	104	28	Temperature 101 F
12:00 p.m.	100 mg. picrotoxin in 1,000 cc. 5% dextrose and water intravenously	....	...	..	
12:30		142/95	...	..	
1:00		150/100	108	30	
1:30		165/105	...	..	
2:00		200/80	...	..	
2:30		210/60	...	..	Blood pressure irregular, cyanosis increasing
4:00		100/58	...	..	Blood pressure irregular, cyanosis improved
9:00	4 cc. lanatoside C (Cedinalid) intramuscularly	....	...	..	
10:30		....	...	..	Beginning to move arms and facial muscles, restless
12:00 a.m.		....	...	..	Talking incoherently

CASE 2.—A 57-year-old man was admitted to the hospital in a comatose condition at 4:30 p. m. on May 17, 1950. He appeared pale, respirations were weak, and he could not be aroused. The urine contained barbiturates, although quantitative analysis was not done. Blood pressure was 100/60 mm. Hg, pulse 110, and respirations 44 per minute. He was placed in an oxygen tent soon after admission and was given 500 cc. of 5% dextrose in isotonic sodium chloride solution and 40 mg. of *amphetamine (Benzedrine) sulfate intravenously.* An additional 20 mg. of amphetamine sulfate was given intravenously at 7:00 p. m. The pulse seemed much weaker, and body temperature was 99.4 F rectally, pulse 100, and respirations 34 per minute. Respirations became more labored, and there was evidence of a large quantity of mucus in the tracheobronchial tree. Bronchial aspiration at 10:00 p. m. yielded a large amount of mucus. The patient was given 300 cc. (75 gm.) of salt-poor human serum albumin intravenously over a one hour period. At 11:30 p. m. 20 mg. of amphetamine sulfate was given intravenously. The pulse seemed somewhat weaker, and respirations were very shallow. At 12:00 a. m. body temperature was 99.4 F by axilla, pulse 128, and respirations 26 per minute. At this time, 500 cc. of blood plasma was given. At 1:30 a. m. color was slightly improved, and at 2:30 a. m. blood pressure was 105/68 mm. Hg and pulse 124. Respirations were still shallow. At 3:30 a. m. 1,000 cc. 5% dextrose in water was given intravenously. The pharynx and trachea were aspirated frequently by catheter. At 4:00 a. m. the body temperature was 100 F by axilla, pulse 122, and respirations 26 per minute. The patient was still not responding, although the cyanosis had cleared from his nail beds. At 5:30 a. m. the blood pressure was 118/70 mm. Hg and pulse 120. At this time the patient began moving his legs. At 8:00 a. m. blood pressure was 120/70 mm. Hg. He was moving his legs frequently, and his color was good, but he was still unconscious. *At 9:30 a. m. he began trying* to open his eyes, and his blood pressure was 120/68 mm. Hg. By 12:00 p. m. he was moving about in bed and appeared restless. By 4:15 p. m. the patient's respirations were regular and deep, and he appeared to be awake and responding, although he was very restless. He tried several times to get out of bed. At 10:00 p. m. he was taking liquids by mouth but was still unable to speak coherently. He seemed to com-

prehend well and obeyed commands. At 7:00 a. m. on May 19, the patient was rational and was asking for relief of pain. Body temperature was normal, pulse rate 100, and respirations 32 per minute. He continued to improve rapidly and was discharged on the fourth hospital day.

CASE 3.—A 49-year-old man was seen by his wife at 10:30 p. m. the evening before admission. At 9:30 the next morning she attempted to arouse him, but he did not respond. One and one-half hours later she tried again to awaken him without success. He was admitted to the hospital on July 30, 1952, at 3:00 p. m. Pentylenetetrazol (3 cc.) was given intramuscularly on admission. His wife reported that two bottles of amobarbital (Amytal) sodium had disappeared. On admission the patient appeared cyanotic and deeply comatose, with rapid, stertorous respirations. The skin was hot and the face and neck flushed. The eyeballs were fixed, and the pupils were 1.5 to 2 mm. in diameter; they did not react to light. Body temperature on admission was 103 F rectally, pulse rate 120, respirations 30 per minute, and blood pressure 120/70 mm. Hg. Bronchial breathing predominated. Heart sounds were muffled and partially obliterated by the breath sounds. Deep tendon reflexes and superficial reflexes were absent. The patient appeared to have barbituric acid intoxication (table 2).

At 12:30 p. m. the blood pressure was 142/95 mm. Hg. At 1:00 p. m. it was 150/100 mm. Hg, pulse 107, and respirations 30 per minute. At 1:30 p. m. the blood pressure was 165/105 mm. Hg, at 2:00 p. m. 200/80 mm. Hg, and at 2:30 p. m. it was 210/60 mm. Hg, with irregular pulse and increasing cyanosis. The intratracheal tube was removed and replaced, and the trachea was aspirated. Administration of picrotoxin was discontinued. At 4:00 p. m. his color was improved; the blood pressure had decreased to 100/58 mm. Hg, and the pulse was very irregular. The patient was beginning to move his arms and face. He was digitalized, receiving 4 cc. of lanatoside C (Cedilanid) intramuscularly at 9:00 p. m. At 10:30 p. m. he was restless and trying to sit up in bed. At midnight he was talking incoherently, asking for his wife, and insisted on going to the bathroom. He continued to improve and was able to eat a large lunch on Aug. 1. Digitalis was given for the next few days, and chloral hydrate was given in 15 grain (0.97 gm.) doses for sedation. The patient was discharged to a sanatorium on Aug. 8, 1952. During the acute episode of hypertension, when the systolic blood pressure had gone over 200, picrotoxin was withdrawn because of rapid irregular respiration. Electrocardiograms showed myocardial damage with apparent pericarditis.

SUMMARY AND CONCLUSIONS

The recovery phase in all three patients was similar. In cases 1 and 3 return of reflexes occurred at 23 and 17 hours respectively after serum albumin was given. Return of reflexes occurred eight hours after serum albumin was given in case 2. All of the patients showed signs of voluntary activity and return of consciousness within a few hours after return of the deep reflexes. There were no maniacal tendencies, and restraints were not required. This is in sharp contrast to the behavior of many patients recovering from barbiturate poisoning when the usual therapeutic agents are used.

Definite conclusions cannot be made from the study of three cases; however, the response to, and results of, the treatment were so uniform that further study seems warranted. This report is made with the hope that the use of analeptics will be abandoned in treatment of barbiturate intoxication. Treatment should be directed toward correcting the cerebral anoxia by eliminating cerebral edema through the use of salt-poor serum albumin or some other agent that will accomplish the same result by action of its high osmotic pressure in drawing the intracellular fluid back into the circulation. General supportive treatment such as adequate oxygen and fluid therapy is essential, and measures should be taken to lower body temperature in patients who have hyperthermia.

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SULFOBROMOPHTHALEIN CLEARANCE TEST

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One of the most frustrating experiences facing the clinician today is the study of liver function. Since several excellent reviews on this subject appear annually, there is no need to recount the extensive literature in this report. It is conservative to say that the liver is probably involved in more physiologically different processes than any other organ in the body; thus, it is exceedingly difficult to designate any single test as "the" indicator of liver function. Even the liver biopsy, which is a valuable tool in the identification of liver disease, cannot serve as sole index to liver functions. Microscopic analysis indicates whether the structure appears normal or abnormal, but in neither case can it reveal to what extent the function of this structure is altered. In an attempt to obtain a quantitative assessment of liver function, we described, in a previous publication, a modification of the sulfobromophthalein (Bromsulphalein) excretion test based on the measurement of sulfobromophthalein clearance.[1] The purpose of this report is (1) to introduce several improvements in the procedure and (2) to summarize our experiences in a significant number of cases.

METHOD

Prerequisite Conditions.—The patient must meet the following requirements. He must have been in a fasting state for 10 hours, have no fever and no jaundice (icteric index less than 20 units), and be in a supine position during the test.

Procedure.—There are seven steps in the procedure. 1. Weigh and record the weight of patient in kilograms. 2. Draw and exact volume of sulfobromophthalein solution to the nearest 0.1 ml. of dye solution (50 mg. per milliliter) into a sterile 10 ml. syringe so that the injected dose will be 5 mg. per kilogram of body weight. 3. Inject

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Dr. J. V. Monke aided in the study of group 2, and Mrs. Louise Wollin helped prepare the manuscript.

[1] Goodman, R. D.: Bromsulfalein Clearance: A Quantitative Clinical Test of Liver Function, J. Lab. & Clin. Med. 40: 531-536 (Oct.) 1952.

the sulfobromophthalein intravenously at a constant rate (injection should require about 30 seconds) and start timing the test when half of the dose has been given. A stop watch is preferred, but the sweep second hand of an ordinary watch may be used. Let the stop watch continue to run. 4. At approximately five minute intervals after the injection, withdraw 5 ml. samples of blood, transfer them quickly to 120 by 12 mm. test tubes and allow the blood to clot. Do not force blood through needles; do not add blood foam with the sample to the test tube; and do not shake the tubes. Hemolysis must be avoided. 5. For accurate timing, compute the mean time of blood samples according to the following schedule:

Start	Stop	Mean Time
5′ 10″	5′ 30″	5′ 20″
10′ 15″	10′ 30″	10′ 23″
14′ 25″	14′ 38″	14′ 32″

Starting time should coincide with appearance of blood, stopping time with the end of withdrawal.

Four samples should be used, and they should be taken at approximately 5, 10, 15, and 20 minutes (all within the first 20 minutes). 6. Add 0.5 ml. of cell-free serum, which has not hemolyzed, after centrifugation from each sample taken after dye injection to photometer tubes, each containing 5 ml. of 0.1 N sodium hydroxide; mix this. Also, in order to prepare blanks, add 0.5 ml. of serum from each sample to photometer tubes, each containing 5 ml. of 0.1 N hydrochloric acid. Set the photometer at 100% transmission. The dye concentration is calculated from the optical density of the test solution at 575 mcg. light transmission. A Coleman Junior spectrophotometer was used in this study. 7. plasma dye concentration is plotted against time in minutes on a two cycle semilog graph, and the result is obtained by following the steps indicated in figure 1.

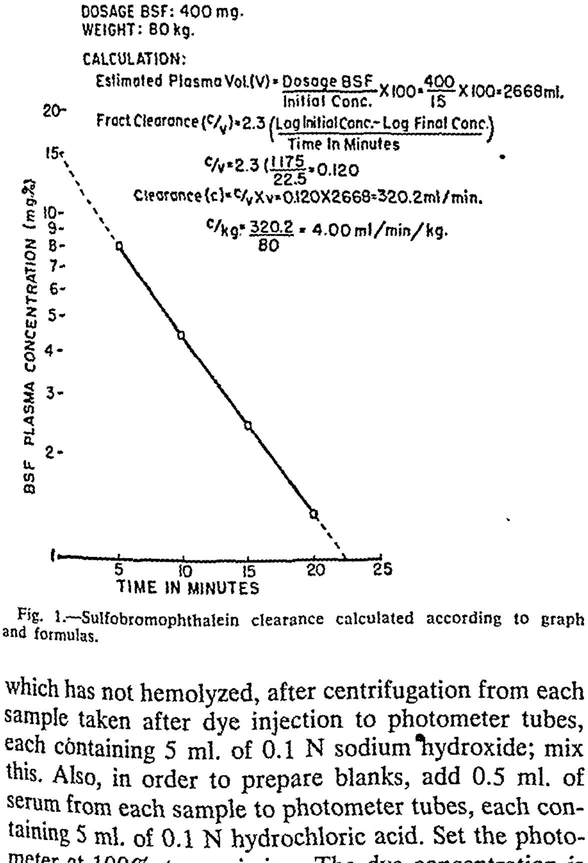

Fig. 1.—Sulfobromophthalein clearance calculated according to graph and formulas.

Standardization.—The method is standardized by diluting 0.5, 1, 2, 3, 4, and 5 ml. of a stock dye standard (0.1 ml. of 5% dye solution from Hynson, Dunning, and Wescott ampul diluted to 500 ml. with 0.1 N sodium hydroxide) to 5 ml. with 0.1 N sodium hydroxide solution. Add 0.5 ml. of normal pooled serum to each tube and mix. Prepare a blank by adding 0.5 ml. of normal pooled serum to 5 ml. of 0.1 N hydrochloric acid and mix. Set blank at 100% transmission with light transmission at 575 mcg. Record transmission of each dilution and make a table for conversion of the per cent transmission to milligrams of dye per 100 ml. of serum.

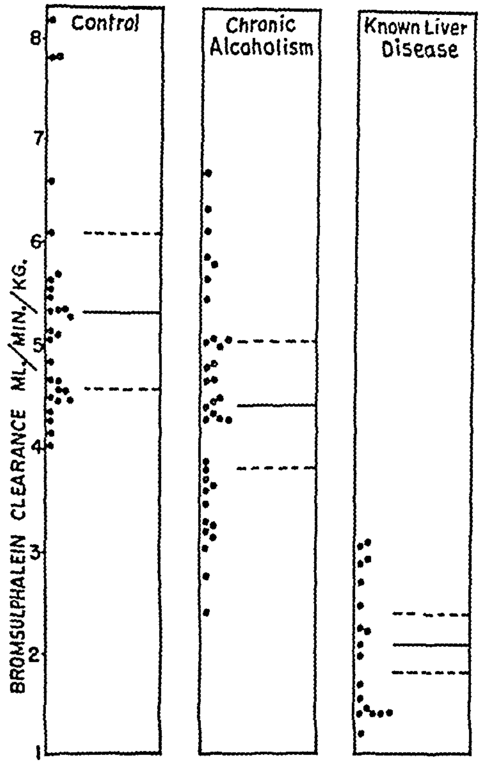

Fig. 2.—Results of sulfobromophthalein clearance tests in three groups of patients.

SELECTION OF PATIENTS

All of the patients included in this study were men in a large general hospital. They were divided into three categories according to certain specifications. Those in group 1 had no history or clinical evidence of liver disease at any time and no history of chronic alcoholism or other contact with hepatotoxic agents. Those in group 2 had a history of chronic alcoholism; no history or clini-

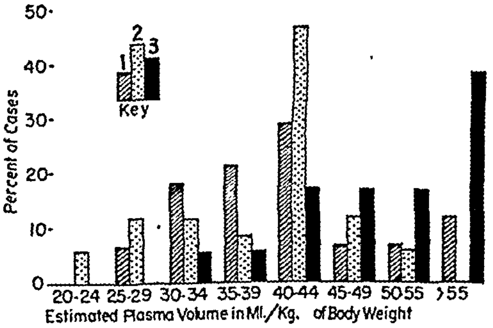

Fig. 3.—Comparison of values for estimated plasma volume found in three groups of patients.

TABLE 1.—*Data on Patients with No Evidence of Liver Disease*

No.	Diagnosis	Age	Weight, Kg.	EPV*	EPV/Kg.	Icteric Index	Prothrombin Time†	A/G Ratio	Cephalin Flocculation‡	Thymol Turbidity	Thymol Flocculation	BSF Clearance§
1	D. ulcer	55	72	2610	36.3	..	..	....	..	..	..	5.15
2	E. ulcer	37	80.5	2000	24.8	3	100	5.1/2.2	0	4	..	4.50
3	G. ulcer	50	70	2920	41.7	..	..	....	..	..	..	5.35
4	G. ulcer	64	82	3250	39.6	..	..	....	..	..	..	4.18
5	D. ulcer	39	57	1800	31.6	10	..	....	..	..	..	4.43
6	Cancer, stomach	32	66.5	3020	45.4	..	..	4.2/1.9	..	..	..	5.10
7	D. ulcer	30	60	2080	34.7	..	..	4.9/1.6	..	..	..	5.35
8	D. ulcer	57	71	2250	31.7	..	..	5.1/2.4	1+	5	..	4.58
9	D. ulcer	59	80	2520	31.5	..	..	....	..	..	..	4.03
10	Gastritis	52	60	3700	61.7	..	..	....	..	..	..	4.54
11	G. ulcer	31	60	3470	57.8	..	..	3.7/1.6	..	..	..	4.46
12	D. ulcer	33	65	3360	51.7	..	..	....	..	..	..	5.66
13	D. ulcer	52	81	2250	27.8	..	..	....	..	..	..	5.36
14	D. ulcer	64	48	3150	65.6	..	..	....	..	..	..	7.80
15	D. ulcer	37	66	2810	42.6	..	..	....	..	..	..	5.65
16	D. ulcer	35	74	3160	42.7	..	..	....	..	..	..	5.10
17	D. ulcer	45	63	2620	41.6	..	..	....	..	..	..	5.68
18	D. ulcer	45	60	2660	44.3	..	..	....	..	..	..	4.68
19	N. P.	35	68	2700	39.7	..	..	....	..	..	..	5.50
20	D. ulcer	30	85	3900	45.9	..	100	4.5/2.2	..	..	..	4.30
21	Normal	40	61	2700	44.3	..	..	....	..	..	..	4.64
22	D. ulcer	42	79	2540	32.2	..	..	....	..	..	..	4.33
23	Epilepsy	44	64	2200	34.4	..	..	....	..	..	..	5.30
24	N. P.	38	73	2590	35.5	6	..	....	0	9	0	7.80
25	N. P.	33	66	2340	35.5	5	..	....	1+	5	0	6.60
26	N. P.	26	68	2410	35.4	4	..	4.07/3.5	0	5	0	8.16
27	N. P.	40	91	4870	53.5	..	..	....	..	..	..	6.10
28	N. P.	36	87	3007	34.6	..	..	....	..	..	..	4.85
	Mean				40.9	..	..	....	..	..	..	5.33
	Standard deviation				6.16	..	..	....	..	..	..	0.75
	% of mean				15.1	..	.	....	..	..	..	14.1

* Estimated plasma volume, ml.
† % of normal.
‡ In 24 hours.
§ Ml./min./kg.

TABLE 2.—*Data on Patients With Chronic Alcoholism Without Clinical Evidence of Liver Disease*

No.	Age	Weight, Kg.	EPV*	EPV/Kg.	Icteric Index	Prothrombin Time†	A/G Ratio	Cephalin Flocculation‡	Thymol Turbidity	Thymol Flocculation	BSF Clearance§
1	45	75	1490	19.9	6	...	....	0	2	0	2.39
2	32	98	3890	39.7	7	...	....	0	4	0	3.33
3	29	75	2980	39.7	6	...	....	0	4	0	4.76
4	52	72	3000	41.7	3	...	....	1+	4	1+	3.58
5	34	72	3180	44.2	7	...	....	0	2	0	4.65
6	32	64	2600	40.6	3	...	....	0	4	0	4.70
7	34	96	2700	28.1	3	...	....	0	3	0	4.4[illegible]
8	40	68	3300	48.5	20	...	....	0	0	0	5.67
9	45	68	3300	48.5	4	...	....	0	4	..	4.35
10	30	68	2840	41.8	9	...	....	0	9	0	5.05
11	36	64	2640	41.3	12	...	....	0	3	..	4.30
12	32	64	3400	53.1	5	...	....	0	..	..	5.80
13	29	68	3400	50.0	4	...	....	1+	2	0	6.35
14	31	82	3250	39.6	2	...	....	0	2	0	4.45
15	29	68	2900	42.6	2	...	....	0	5	0	5.47
16	37	77	3100	40.3	2	...	....	0	4	0	4.32
17	42	87	3100	35.6	..	...	....	..	..	..	3.50
18	33	80	2670	33.4	..	...	....	..	..	..	3.70
19	56	57.3	2470	43.1	..	100	4.7/1.8	0	5	0	3.79
20	30	75	2840	37.9	5	...	....	0	6	0	6.14
21	33	91	3040	33.4	8	...	....	0	3	0	3.21
22	41	58	1450	25.0	8	...	....	0	4	0	4.52
23	58	82	3250	39.6	4	...	....	0	4	0	4.33
24	36	92	1830	19.9	4	...	....	0	4	0	3.14
25	36	87	3450	39.7	..	...	....	..	..	..	4.82
26	41	60	1890	31.5	3	...	....	..	5	..	5.67
27	45	60	2680	44.7	..	...	....	..	..	..	5.14
28	45	78	3400	43.6	12	100	3.2/1.9	2+	10	0	5.00
29	59	80	3180	39.8	5	...	4.2/3.5	0	2	0	3.83
30	34	96	2760	28.7	6	...	....	0	9	±	2.78
31	40	59	2640	44.7	4	...	....	0	2	0	6.70
32	43	89	2560	28.8	7	...	....	0	8	±	3.33
33	30	73	3100	42.5	4	...	....	0	8	±	5.06
34	27	100	3300	33.0	..	...	....	±	6	+	3.62
35	43	65	2470	38.0	..	...	....	..	..	..	3.04
Mean				38.4	..	...	....	..	..	..	4.43
Standard deviation				4.93	..	...	....	..	..	..	0.63
% of mean				12.8	..	...	....	..	..	..	14.1

* Estimated plasma volume, ml.
† % of normal.
‡ In 24 hours.
§ Ml./min./kg.

cal evidence of liver disease at any time; no history of recent acute alcoholism; and good nutritional status for several weeks prior to testing. Those in group 3 had known liver disease, either past or present. Ten of the 18 patients in group 3 had liver biopsies confirming the clinical diagnosis.

All of the patients were hospitalized and received thorough medical examinations, including routine blood and urine tests. Group 1 consisted chiefly of convalescent patients from the medical service. These patients had recovered from their initial complaints and were nearly ready for discharge. Group 2 consisted entirely of patients from the neuropsychiatric service. They were hospitalized for disulfiram (Antabuse) therapy and rehabilitation. Group 3 consisted mainly of patients in different stages of cirrhosis of the liver, irrespective of etiology.

TABLE 3.—*Data on Patients with Known Liver Disease*

No.	Age	Weight, Kg.	EPV*	EPV/Kg.	Icteric Index	Prothrombin Time †	A/G Ratio	Cephalin Flocculation ‡	Thymol Turbidity	Thymol Flocculation	BSF Clearance §
1	55	84	3300	39.3	11	70	3.6/3.1	4+	6	..	1.40
2	62	72	3000	41.7	8	100	....	2+	5	..	2.88
3	59	70	5180	74.0	17	64	2.7/3.1	4+	10	3+	1.45
4	44	57	2850	50.0	8	77	3.6/2.4	0	5	0	3.03
5	53	76.5	2350	30.7	..	...	....	...	..	..	2.71
6	37	53.6	3185	59.4	40	44	3.6/2.4	3+	21	3+	1.40
7	59	64.5	2950	45.7	5	58	....	3+	5	1+	2.91
8	47	87	4140	47.6	8	88	....	3+	18	..	2.26
9	56	71	4200	59.2	11	100	4.2/1.9	3+	4	0	2.40
10	35	77.7	4250	54.7	20	...	2.9/2.2	3+	24	4+	1.43
11	64	67	2920	43.6	3	100	4.4/2.4	1+	12	0	3.09
12	54	84.8	3960	46.7	9	100	5.5/2.2	0	1	0	2.10
13	77	62	2450	39.5	5	64	4.4/2.9	0	2	..	1.97
14	52	62	3690	59.5	..	...	4.2/2.2	0	6	0	1.68
15	46	64	3230	50.5	15	...	4.2/2.1	0	4	0	2.21
16	52	73	4200	57.5	..	...	....	4+	45	..	1.20
17	41	68	3970	58.4	21	88	....	...	..	..	1.40
18	29	70	3680	52.6	..	...	....	...	..	..	1.55
Mean				50.6	..	...	....	...	..	..	2.06
Standard deviation				6.0	..	...	....	...	..	..	0.30
% of mean				11.9	..	...	....	...	..	..	14.6

* Estimated plasma volume, ml.
† % of normal.
‡ In 24 hours.
§ Ml./min./kg.

RESULTS

The data on 81 patients appear in tables 1, 2, and 3. Wherever possible, additional tests of liver function were obtained, namely, icteric index, prothrombin time, albumin-globulin ratio, cephalin-cholesterol flocculation, thymol turbidity, thymol flocculation, and liver biopsy. In addition, an estimate of the plasma volume was made in each test, since it can be computed from this technique. The data on sulfobromophthalein clearance are graphed in figure 2. The solid horizontal line in each column represents the mean value, while the broken horizontal lines indicate the standard deviation from the mean. Figure 3 shows the range and distribution of estimated plasma volume determinations made by this procedure.

The separation of groups 1 and 3 is clearly evident (fig. 2). All of the values in the control series yielded values above 4 ml./min./kg., while nearly all the values in the group with liver disease fell below 3 ml./min./kg. Group 2 is of special interest because 37% of the values fell below 4 ml./min./kg., and prior to testing there was no reason to expect such results. In group 3, it is of further interest to note that the eight patients who did not have liver biopsies nevertheless had sulfobromophthalein clearance values within the same range as those who had confirmatory biopsies. The data on estimated plasma volumes for groups in which no liver disease was evident showed essentially a normal distribution about the mean (40 ml./kg. of body weight); a much higher plasma volume was consistently found for patients having liver disease.

COMMENT

The advantages of this test over the conventional 45 minute sulfobromophthalein retention test have been described previously.[1] The value of any clinical laboratory test depends on its safety, reliability, simplicity, reproducability, and economy. Enormous quantities of sulfobromophthalein have been used in the past 25 years with reportedly few toxic effects. No unpleasant reactions were observed in any of our patients. The data on clearance correlate well with the clinical observations made in this study. We have shown in both controls and persons with chronic liver disease that the clearance test can be repeated in 24 hours, one week, or two months and still give a check within 5% of the original value. The same observations were made by earlier investigators who were studying sulfobromophthalein excretion rates. Through the past two decades many chemical tests of liver function have been discarded, but the sulfobromophthalein test has remained a favorite of many.

The clearance test is, indeed, simple. It requires no expensive reagents or complicated laboratory procedures. Twenty minutes of the examiner's time is far less than that required for the ordinary tolerance tests. Even the mathematical computation has been condensed into a formula that any trained technician can readily solve.

The clinical data from this study require very little discussion. We have expressed liver function quantitatively in a manner that provides a clearcut separation between our controls and those with liver disease. The fact that alcohol is a predisposing, if not causative, agent in the production of liver injury is certainly supported by the results in group 2.

We also want to emphasize that in each case studied an estimate of plasma (or serum) volume was made by conventional dye dilution procedures. The arbitrary use of a universal standard such as 40 or 50 ml. per kilogram of body weight is bound to engender greater sources of error. Our knowledge of liver disease, for example, has already revealed by other methods that the extracellular compartments undergo drastic changes from the normal state. It seems only reasonable, therefore, that a direct measurement of the plasma volume be made in each person studied by clearance techniques.

SUMMARY

Sulfobromophthalein (Bromsulphalein) clearance determinations were made in 81 patients. The control group had a mean value of 5.33 ± 0.75 ml./min./kg. All of the values for the control group were above 4 ml./min./kg. The group of patients with definite liver disease had a mean value of 2.06 ± 0.30 ml./min./kg., and no value was above 3 ml./min./kg. The patients who were chronic alcoholics had a mean value of 4.45 ± 0.63 ml./min./kg. Although this mean was only slightly less than that of the control group, 37% of the values were below the lowest value obtained for any of the controls.

This test is safe, simple, rapid, and reliable and gives more information than previously reported modifications of the sulfobromophthalein test. The added value of using sulfobromophthalein disappearance to estimate the plasma volume deserves further consideration and investigation. We do not wish to imply that this test is the best test of liver function, since it is doubtful that there will ever be a single test to rely on. We have been encouraged by our results and hope that others will be stimulated to adopt this technique.

444 N. Bedford Dr. (Dr. Goodman).

NATAL DAY DEATHS

THE LONG-NEGLECTED FIELD OF INFANT MORTALITY

Herman N. Bundesen, M.D., Sc.D., Chicago

Our recent 14-year study of 10,000 neonatal deaths with satisfactory postmortem examinations and complete clinical investigations indicates that too many infants continue to die needlessly, especially during the critical early days of life. We are still doing too little, too late, and not too well for too few in the long neglected field of infant mortality. That is why the present level of early infant deaths still presents a major problem. Those responsible for this failure to reduce early infant mortality include health officers, obstetricians, pediatricians, hospital administrators, and all others concerned with the care of the pregnant woman and her newborn infant.

The task that confronts the health officer, whose duty it is to contribute to a reduction in the number of needless infant deaths, is to plan a definite program aimed specifically at reducing the number of such deaths in the areas in which they are most frequent and to see that this program is put into action and carried out to the letter. Such a program, to be most effective, should be planned and carried out in cooperation with physicians, hospital administrators, and nurses.

Before the health officer can plan and put this cooperative program into action, he must adopt the following procedures: 1. He must carefully analyze and evaluate all infant deaths occurring within his jurisdiction, to determine the age and weight groups in which most of them occur. 2. He must make every effort to see that the causes of death as given on the death certificates are the true anatomic causes. 3. He must determine from such correct certificates the most frequent actual causes of death and by investigations find the factors contributing to the deaths in the age and weight groups in which the majority are occurring. 4. He must reanalyze and audit his existing plan for controlling infant mortality and, in the light of these analyses, determine wherein it is failing to produce results, so that it may be altered accordingly. 5. He must vigorously and aggressively make his plan operative and keep it operative once he has adopted it.

This type of program has been instituted in Chicago, and it has been found that over half of all infant deaths (52.0%) now occur within the first three days of life—more than on the other 362 days of the first year combined. More than half of these early deaths (53.2%) occurred in infants with a birth weight under 1,500 gm. In Chicago, the great majority of neonatal death certificates now do carry the accurate anatomic cause of death. because postmortem examinations are performed in over 85.0% of these deaths. These accurate death certificates, but more particularly a study of satisfactory postmortem examinations,[1] have shown that almost three-fourths (70.0%) of the early deaths occurred from just two causes, abnormal pulmonary ventilation (respiratory distress) and injuries at birth.

It is these early deaths that comprise the long-neglected field of infant mortality, and it is in this field particularly that the Chicago Board of Health's plan for reducing mortality has failed to produce the desired results. After reanalyzing our existing plan, we have found that it did not produce the desired results because of two types of failures: 1. We concentrated our efforts

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President, Chicago Board of Health.

Read in the Symposium on Prevention of Needless Neonatal Deaths before the Section on Pediatrics at the 102nd Annual Meeting of the American Medical Association, New York, June 3, 1953.

[1] To be considered satisfactory, a postmortem examination (1) must be done by a competent pathologist, familiar with fetal and infant disease, (2) must include a gross examination of the entire body including the brain and cranial cavity, (3) must include a microscopic examination of any tissues necessary to make an accurate diagnosis, and (4) must include a complete report of the results of the examination. Whenever the postmortem record stated that microscopic examinations of all important tissues were not made, but the cause of death was obvious to the trained pathologist from the examination made, the postmortem was also considered satisfactory.

neither on the deaths in the low weight groups nor against the two commonest causes of early deaths, abnormal pulmonary ventilation and injuries at birth. 2. Although we had formulated regulations for maternity divisions and newborn and premature nurseries, these regulations did not provide for constant and consistent optimal care for mothers and their infants. Moreover, we failed to enforce to the letter the regulations we had.

Frankly, in retrospect, we now realize that self-satisfaction with what we had already accomplished diverted attention from the long-neglected field of infant mortality, and thus we did not make progress in reducing the number of early infant deaths. Thus, from 1935 to 1946, a period in which comparable figures of other cities were obtainable, the infant mortality of Chicago was the lowest among the now 10 largest cities in the United States; however, from 1941 to 1946, the rate for Chicago remained almost static but still was lowest among the 10 largest cities. After 1941, the infant death rates in most of the other large municipalities continued to decline gradually and finally reached about the same level as that of Chicago, although the rate in Chicago for the combined period from 1940 to 1950 is lower than that of any of the 10 largest cities in the United States (table 1).

TABLE 1.—*Comparison of Births, Infant Deaths, and Infant Mortality for the Ten Largest Cities in the United States from 1940 to 1949**

City	No. of Births	No. of Infant Deaths	Combined Infant Mortality
Chicago	691,519	19,645	28.4
New York	1,351,608	39,148	29.0
Los Angeles	368,713	11,017	29.9
Cleveland	196,734	6,323	32.1
Detroit	377,388	12,368	32.8
St. Louis	172,475	6,008	34.8
Philadelphia	389,818	14,060	36.1
Boston	158,781	5,850	36.8
Baltimore	204,632	7,940	38.8
Washington, D. C.	177,677	7,225	40.7

* Data were taken from the annual reports "Vital Statistics of the United States" published by the National Office of Vital Statistics, Federal Security Agency, United States Public Health Service, for the years 1940-1949.

Since by 1950 we had become too complacent about our then low infant death rate we did not investigate carefully when and why so many of our smaller infants were continuing to die. Although we had completed our study of 10,000 neonatal deaths, we failed to interpret properly the facts that this study revealed. We failed to take cognizance of the high mortality among the very small infants dying perinatally (just before, during, or immediately after birth) and particularly during the first three days of life and, therefore, made little effort to reduce this high rate. We were misled by failure to subdivide the deaths of the neonatal period into more restricted groups. Therefore, it took us too long to carefully analyze and then use all the actual facts about the specific delimited group of natal day deaths. Since we did not have these facts, we could not attack the problem of these deaths at the points where most of the attack should have been centered.

Just as up to 1935, in attempting to control deaths at various ages, there was too much stress on reducing infant mortality and too little on reducing neonatal mortality, so now there is too much stress on neonatal mortality and too little stress on natal day mortality, or better still on deaths during the first three days. Up to 1938, we based our preventive efforts on the inaccurate causes of death as shown on the ordinary death certificates without a satisfactory postmortem examination, just as most health officers did and as many still do. In 1935, we began our study to determine the actual anatomic causes of death as revealed by our satisfactory postmortem examinations. By 1938,[2] we were fully convinced that the causes given on most death certificates were inaccurate and misleading and hence were misguiding health officers in their preventive efforts. As early as 1938, we were beginning to recognize that the two main causes of death against which preventive efforts had to be exerted were abnormal pulmonary ventilation (respiratory distress) and injuries at birth. Nevertheless, we failed to take action against deaths from these two causes in the early age, low weight groups. Many of these deaths could have been prevented by early aggressive corrective action in providing the best possible prenatal care of the mother, natal care of the mother and infant, and immediate postnatal care of the infant.

In the control of infant mortality the greatest effort must be concentrated on the groups in which most of the deaths are occurring. It predicates that infant mortality has become static because insufficient preventive efforts have been exerted toward the age, weight, and known cause of death groups, in which most deaths occur.

For some years now every neonatal death has been investigated in Chicago, and it has been found that far too many were preventable during the first day of life. The major causes of these needless deaths and the problems of their prevention differ markedly from those during the remainder of the first month. Because of this fact, it has been felt essential to separate the deaths on the first day from those in the remainder of the first month, and the deaths occurring on the first day of life are called natal day fatalities.

NATAL DAY MORTALITY

Based on data on 10,000 neonatal deaths, the greatest problem confronting those interested in reducing infant mortality today seems to be to determine what preventive efforts should now be directed primarily toward reducing natal day mortality. Actually, during 1952 in Chicago, over one-third (35.6%) of all infant deaths occurred on the critical natal day.

We believe that a significant reduction in infant mortality rates could be effected by making an intensive attack on the causes of deaths that occur during the first hour, the first eight hours, the first day, and the first three days of life. For example, in Chicago, in 1952 the deaths of infants in the first hour after birth represented 27.2% of the deaths of the first eight hours, those during the first eight hours represented 66.5% of the deaths on the first day, those on the first day represented 68.4% of the deaths of the first three days, and those on the first three days represented 73.1% of the deaths of the first 28 days and 52.0%, or more than half, of the deaths of the first year.

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[2] Bundesen, H. N., and others: Factors in Neonatal Deaths, J.A.M.A. 111:134-141 (July 9) 1938.

A comparison of Chicago rates in 1912 with those in 1952, which are similar to those in many other parts of the United States, shows that during the last 40 years there has been practically no reduction in the mortality of the first day of life (fig. 1). For example, in 1912, the death rate for the first day of life was 11.1 per thousand live births. By 1952, the natal day death rate was 9.4, a reduction of less than two for every thousand live births. On the other hand, the death rate in 1912 for infants dying during the first month of life (*neonatal*[3] *death* rate) was 46.2 per thousand live births. By 1952, it was 18.9, a reduction of 27 for every thousand live births, most of which reduction was in deaths occurring after the first week. Even more startling is the fact that the death rate in 1912 for infants dying during the first year of life was 118.6 per thousand live births. By 1952, it was 26.4, a reduction of 92 for every thousand live births, most of which reduction was in deaths occurring after the first month (fig. 1). During these 40 years, in Chicago as almost everywhere else, there has been a great reduction in the death rate under 1 year (nearly all of which was in the period 1 through 11 months), about one-third as much reduction in the death rate under 1 month, but, by comparison, practically none in the death rate under 1 day.

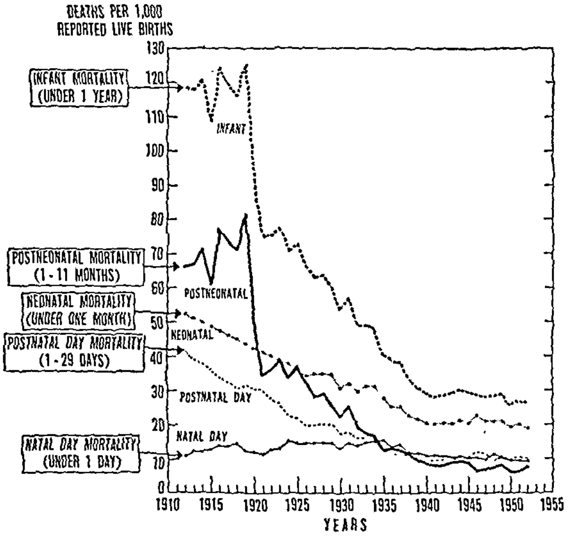

Fig. 1.—Infant, postneonatal, neonatal, postnatal day, and natal day mortality in Chicago, 1912-1952.

In 1934, the natal, postnatal, and postneonatal death rates per thousand live births reached the same level, because postnatal and postneonatal deaths were declining while the natal day death rate was remaining constant. Moreover, since 1934, these two rates have continued to decline, so that the natal day deaths have become an ever-increasing proportion of the total infant deaths, and now in 1953 natal day deaths are the major pressing problem in the control of infant mortality. In 1912, the natal day deaths comprised only 1/10 of the total infant deaths, while in 1952 they comprised over 1/3 of these deaths. Over a 40 year period natal day fatalities (under one day) have been reduced only 1/53 as much as the infant deaths (under one year) and only 1/15 as much as neonatal deaths (over one day).

CLASSIFICATION OF FATALITIES INTO AGE GROUPS

In the last 40 years most health officers seem to have overlooked the full significance of the large number of preventable deaths occurring on the first day of life. This has come about largely because the usually acceptable age group classification of deaths of "under 1 month" and "under 1 year" is grossly misinforming and thus misleading. It is misinforming because all deaths under 1 month are grouped together even though the rate of death on the various days of the neonatal period differ greatly, the birth weights of the infants dying during the various parts of the neonatal period also differ to a great extent, and the causes for the deaths during the various parts of the neonatal period are different to a great degree. Therefore, to be accurate and informative it is necessary to classify neonatal deaths in four age groups, depending on the weight groups in which most of the deaths occur and the causes for all deaths.

On this basis, our studies have convinced us that neonatal deaths should be classified into four groups, namely, deaths that occur during the first day, during the first three days, during the first week, and during the period 7 to 27 days, inclusive, instead of just into one group of under 28 days, as is now done. Therefore, we have classified the neonatal deaths in our series in these four age groups, and we have labeled them with what we believe to be definite, descriptive terms as natal day deaths (first day), tridiem deaths (first 3 days), hebdomadal deaths (first week) and posthebdomadal deaths (7 to 27 days). In studying these deaths we have classified them by age, weight, and cause, and not just by age or weight or cause alone.

The percentage distribution of our accurate seven causes of death in age periods show that our classification by age groups and cause of death is a logical one and clearly shows the direction in which our preventive efforts may be most effective (table 2). It will be noted from this table that, during the first day and the first three days, the proportion of deaths from abnormal pulmonary ventilation and injuries at birth combined far exceeds that of all other causes of death. During the balance of the first week (three to seven days), the proportion of deaths from abnormal pulmonary ventilation decreases materially, whereas the proportion of deaths from infection and blood dyscrasias combined increases directly with age. In the distribution for the posthebdomadal deaths (after the first week), infections and malformations become the leading causes of death, while abnormal pulmonary ventilation and injuries at birth decline (fig. 2).

A sensible classification of infant deaths into more delimited age groups by cause of death (and by weight as well), when the causes are determined by satisfactory postmortem examinations, will make the figures especially informative. Then, when all concerned utilize this informative classification with identical criteria and base lines, they will become aware of the actual causes of death in the various age and weight groups against which preventive measures are needed in their areas and may then logically and successfully apply them. Furthermore, these similar data from states and local areas can then be combined so that a mass of statistically significant data will be available for analysis by everyone concerned.

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[3] The definition of the World Health Organization for neonatal is the period under 28 days.

The majority of all natal day deaths occur in smaller infants weighing less than 1,500 gm. (3 lb. 5 oz.) at birth. It is important here to stress that in our classification prematurity per se was not considered to be an actual cause of death because, in the light of present knowledge, prematurity is only a measure of the length of uterogestation.

All infants prematurely born, irrespective of weight, account for only 8.1% of all the live births, but they account for 79.1% of all the natal day deaths. However, lower weight infants (under 1,500 gm. at birth) comprise only 1.3% of all live births, but comprise 60.1% of all the natal day deaths. Moreover, among these premature infants of lower weight, 704.0 died during the first year for every thousand born. Conversely, heavier weight infants (2,000 to 2,500 gm.) comprise 5.4% of all the live births, but they comprise only 7.4% of all the natal day deaths. Moreover, among the premature infants of heavier weight, only 53.4 died for every thousand born.

TABLE 2.—*Anatomic Causes of Infant Deaths in Chicago 1936-1949*

	Percentage of Total No. of Infants Who Died at Various Ages by Cause									
Condition	Under 1 Day	Under 3 Days	1 to 3 Days	Under 1 Week	3 to 7 Days	8 to 29 Days	3 to 29 Days	1 to 29 Days	Under 30 Days	1 to 11 Months
Abnormal pulmonary ventilation	54.3	50.2	50.6	47.5	28.2	16.3	22.4	21.4	43.7	6.8
Injuries at birth	18.2	18.8	19.1	18.3	13.3	4.4	9.3	9.3	16.6	1.3
Malformation	12.0	12.5	12.1	13.5	22.4	32.1	26.9	19.8	15.8	19.7
Infections	6.2	8.7	8.4	10.0	20.5	38.3	28.8	35.7	13.4	55.6
Blood dyscrasias	3.9	4.7	4.7	5.5	10.4	3.9	7.2	4.3	5.3	0.9
Anoxia	4.7	4.4	4.4	4.2	2.9	0.9	2.0	1.6	3.8	0.0
Miscellaneous	0.7	0.7	0.7	1.0	2.3	4.3	3.4	7.8	1.4	15.7

In the past much effort and personnel has been led in the wrong direction because of the misleading term premature, just as up to the present the term neonatal has been misleading. When all premature infants are subdivided into a number of significant weight groups, instead of being classified in just one weight group (5 lb. 8 oz. and under) as required by definition (World Health Organization), efforts at controlling mortality among them can be more efficiently applied because of the following proved facts: 1. Deaths in smaller premature infants often result from different causes than deaths in larger premature infants. 2. Specialized care immediately after birth is required for the smaller premature infant, while relatively little care is required for larger premature infants. 3. Nonwhite infants between 2,350 and 2,500 gm., who make up 12% of all premature infants, must be classified as premature infants on the basis of the definition of prematurity by weight alone (5 lb. 8 oz. and under). In reality, on the basis of ossification centers [4] and other grounds, they are physiologically full term and are not regarded as premature by many authorities.[5] In Chicago, in 1952, 12.7% of all nonwhite infants were premature, while only 6.7% of all white infants were premature. If nonwhite infants with a birth weight between 2,350 and 2,500 gm. were not considered to be premature, nonwhite premature births would have been only 8.6% of all nonwhite births. I believe that this figure of 8.6% is a truer representation of the frequency of premature births among the nonwhite than is the figure 12.7%.

When regulations [6] for the control of maternity divisions and newborn nurseries covering policies, personnel, procedures, and equipment were first formulated in 1937, the same type of intensive, continuous care was required for all premature infants irrespective of whether the infant was large or small and the strict requirements of these regulations were aggressively enforced. As a result, the efforts of trained scientific personnel were unnecessarily scattered over too wide a range, providing special care for many infants who did not need it to the neglect of such care for the lower weight group where it was desperately needed. It is those smaller infants who accounted for 60.1% of the natal day mortality and 53.2% of the tridiem mortality.

CAUSES OF DEATH IN THE EARLY AGE AND LOW WEIGHT GROUPS

There are seven major anatomic causes of death in the neonatal period, according to our classification, namely: (1) abnormal pulmonary ventilation, (2) injuries at birth, (3) malformations, (4) infections, (5) blood dyscrasias, (6) anoxia, and (7) miscellaneous causes. Our recent study showed that abnormal pulmonary ventilation and injuries at birth alone account for 72.5% of all the infant deaths that occur during the first day of life, of which abnormal pulmonary ventilation causes 54.3% and injuries at birth cause 18.2%. These two causes are responsible for 83.5% of all the deaths on the first day in infants of low weight (under 1,500 gm.). It is on the basis of these facts about the frequency of these two main causes of early infant deaths that we predicate much of our action to reduce needless perinatal deaths. Abnormal pulmonary ventilation includes all those infants who, on satisfactory postmortem examination, show no specific pathological lesions except those that may be in the lungs. In many instances, the deaths from abnormal pulmonary ventilation are due to the anatomic condition known as abnormal pulmonary ventilation with hyaline-like membrane and resorption atelectasis. In some instances, the deaths are due to extreme immaturity of the lungs. Occasionally, no cause could be demonstrated other than varying degrees of atelectasis (respiratory distress), in which deaths could be accounted for only on the basis of inadequate functioning of the lungs.[7]

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[4] Taback, M.: Birth Weight and Length of Gestation with Relation to Prematurity, J. A. M. A. 146:897-901 (July 7) 1931.

[5] Eastman, N. J.: Prematurity from the Viewpoint of the Obstetrician, Am. Pract. 1:343-352 (March) 1947.

[6] The Joint Maternal Welfare Committee of Cook County aided in the formulation of the regulations.

The category "injuries at birth" includes mainly those infants who die from intracranial hemorrhages. Nineteen per cent of the deaths in the first three days of life are due to injuries at birth. Our study revealed that a total of 56.7% of the neonatal deaths due to injuries at birth in Chicago were infants that were premature, and the majority of these occurred on the first day of life. We also found that the method of delivery is by far the most important of all the factors related to these deaths. Hence, it is evident that the most skilful type of obstetrics in delivery of the premature infant is needed to help reduce the number of deaths in these infants from intracranial hemorrhage.

In the established classification of causes of death, which is set up by the World Health Organization and followed by the National Office of Vital Statistics, based only on the statement of the cause as shown on the death certificate, most deaths in premature infants are grouped together regardless of the weight of the infants and the true anatomic cause of death. They are erroneously charged to prematurity, although the actual cause of death is not prematurity per se but rather abnormal pulmonary ventilation or injuries at birth. Prematurity is a measure of gestation, although by definition (World Health Organization) it is a weight (5 lb. 8 oz. and under). On the basis of our postmortem examinations, we do not believe that prematurity can be classified as a cause of death.

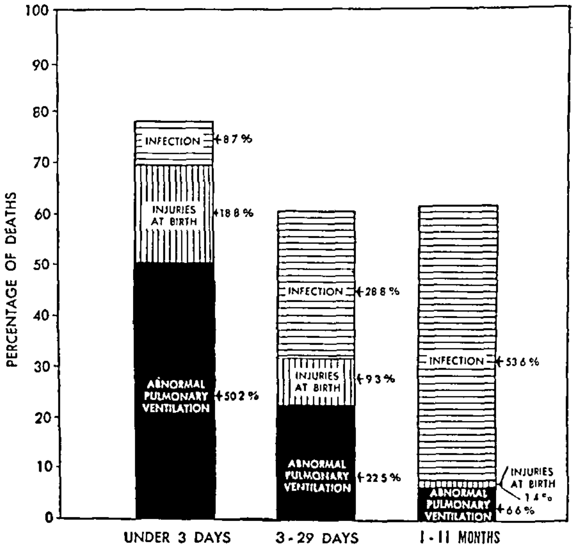

Fig. 2.—Percentage distribution of three main causes of death among infants by age at death, in Chicago, 1936-1949. With increasing age during the first year, deaths from abnormal pulmonary ventilation and injuries at birth decreased proportionately and infections increased, so that for the period 1 to 11 months more than half of the deaths were due to infection and only a small portion due to injuries at birth and abnormal pulmonary ventilation.

To group all premature deaths together is just as illogical as it would be to group together all deaths during the neonatal period and erroneously charge them to a useless definition such as "neonatality," which literally means dying of "young age," just as we now say persons die of old age. Rightly, we charge these neonatal deaths to the specific conditions causing them, such as infections or malformations. Yet, officially[8] we are required to group together all deaths in premature infants and erroneously charge them to a definition or a word "prematurity" instead of to such actual causes of death as abnormal pulmonary ventilation or injuries at birth.

With good obstetric and pediatric care, many premature infants who die could live. But when deaths are erroneously charged to prematurity, many may exert all their efforts in the prevention of prematurity with too little consideration of the painstaking care that the obstetrician must utilize in delivery of these infants and the special pediatric care required immediately after birth. These deaths in premature infants depend, in many cases, on lack of the best possible obstetric (prenatal and natal) and pediatric (postnatal) care on the part of everyone concerned, the mother herself, the physician, the hospital administrator, and the health officer.

It must be borne in mind that, in the light of present knowledge, little is known about preventing prematurity in many cases, although there is much that the good obstetrician can do in this regard if the available knowledge were utilized. In the more informative classification used by us, deaths in premature infants are charged to the specific condition causing the death, such as respiratory distress, injury at birth, or infection. Guided by our classification, it is possible to better determine the kind of preventive measures that physicians, hospital administrators, nurses, and all others responsible for the care of these infants should utilize. This is not possible with the misleading classification of the National Office of Vital Statistics, which all state health officers and many others, including us, are required to use.

RESPONSIBILITY

From our past failures, we now realize that the health officer's function in reducing the number of early deaths in infants is to devise control measures that will be thoroughly, constantly, and specifically directed at improvement in the prenatal care of the mother and in the perinatal care of the mother and her infant. Our analysis of 10,000 neonatal deaths has demonstrated that, of the many prenatal and perinatal factors that have an effect on mortality rates of the first 3 days, five have a most profound influence. Two of these, socioeconomic status and the toxemias of pregnancy, are subject to prenatal control; the other three, method of delivery, anesthesia, and the type of care the infant receives, are subject to perinatal control. It is self-evident that efforts to control perinatal mortality must be applied mainly in the hospitals, because the great majority of infants are born in hospitals (96% in Chicago and 85% of the 3,900,000 births in the United States). Furthermore, of the deaths that occur during the first week (63% of all infant deaths in Chicago), the overwhelming majority (96%) occur before the newborn infants ever leave the hospital.

Our regulations for maternity divisions and newborn and premature nurseries were formulated for the purpose of improving the quality of these hospital services. We believe that the unsatisfactory conditions that have been found to exist in certain institutions with unnecessarily high death rates occurred because our regulations were not constructed so as to assure constant and consistent optimal care for mothers and their infants, and because we failed to enforce to the letter the regulations that we had. Our regulations were not formulated to differentiate between the care required for the lower weight and heavier weight infants. They did not take into account the need for the highest quality of administrative leadership on which depends the efficient functioning of all personnel in the maternity division and newborn nurseries. Because we failed to enforce the regulations that we already had in many important aspects, several unsatisfactory events resulted.

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[7] Potter, E. L.: Pathology of the Fetus and the Newborn, Chicago, Year Book Publishers, Inc., Chicago, 1951, pp. 249-252.

[8] Sixth Revision of the International Cause of Death Code of the World Health Organization. Vol. 1 and 2, World Health Organization, Columbia University Press, New York, 1948.

Policies and procedures in some hospitals were established on paper only and were not carried out, thus misleading the hospital administrator, physicians, nurses, and the health officer. Delivery of complicated cases was often entrusted to physicians not equipped to carry them out satisfactorily. The care of newborn and premature infants was all too often left to unqualified scientific personnel, and consultation was not immediately called when needed for desperately ill infants. Anesthetics were often administered by unqualified personnel, particularly at night, on Sundays and holidays, and in emergencies. Deaths actually resulted from improper administration of the wrong anesthetics. Many hospitals failed to meet the minimum requirements for adequate care and essential facilities; there was a shortage of medical and nursing personnel; and there was a lack of well-formulated policies. Faulty procedures in the labor and delivery room and newborn and premature nurseries at times existed to the degree of constituting real hazards to parturient mothers and infants. There was often a lack of sufficient space for maternity and nursery activities. There was a lack of joint free and frank discussions among all groups of personnel connected with the prenatal and parturient aspects of the care of the mother and the postnatal care of the infant. There was a lack of liaison among all those interested in the problem of providing adequate care for the mother and her newborn infant, including physicians, nurses, nutritionists, social workers, and the health officer.

The health officer who by ordinance is entrusted with the licensing and control of hospitals has the opportunity as well as the responsibility of making sure that all available knowledge and skill are utilized in the care of mothers and infants in these institutions. He can aid the hospital administrator in making sure that hospitals have available at a moment's notice all the essentials for providing proper care, including established policies, adequate personnal, proper procedures, and sufficient paraphernalia (equipment).

Through the establishment of an evaluation and rating system similar to those that have been utilized successfully in the control of dairies and restaurants, the health officer can help keep the hospital administrator informed of the exact conditions in his institution. We have found that with such a system, and with adequate well-trained inspection personnel, it is possible to determine closely in what respects each institution is deficient and actually to evaluate a hospital on its degree of compliance with the regulations. Even more important, with this system, it is possible to determine the quality of service the hospital is rendering to mothers and infants and many of the reasons why many infants died. When deficiencies are noted in a hospital, the health officer, by consultation with the hospital administrator and the chiefs of the obstetric, pediatric, and nursing staffs, can, as a rule, aid them in bringing about the necessary corrections. In the evaluation and rating system that we employ, the greatest weight is given to the quality of the personnel. Experience has shown that in those institutions where scientific personnel are well trained, are thoroughly skilled in what constitutes optimal care of the mother and her infant, and, above all, are imbued with an innate enthusiasm about the job they are doing mortality is at the lowest obtainable level. And conversely, in institutions where these conditions do not exist, where personnel is lackadaisical and more interested in extraneous activities than in providing optimal service, mortality does not decline but continues to ascend.

The health officer, in cooperation with the physician and the hospital administrator, by doing his full duty, can bring about improvement in policies, personnel, procedures, and facilities. He can do this primarily by aiming his efforts at making sure that leadership in the hospital as a whole and in each section of the maternity division is forceful, energetic, and endowed with a determination to make inroads on the number of needless deaths in the institution. Ultimately, it will be discovered that the type of care furnished by the hospital depends on top level administrative, obstetric, pediatric, and nursing leadership. When leadership is efficient, the hospital administrator, the physician, and nurses jointly assure that the training of all personnel is adequate and that they will continue to carry out their tasks without interruption. On this top level leadership also depends whether or not faulty procedures will be tolerated or obviated.

It is reliably estimated that some 85% of mothers deliver their infants normally without complications, but when complications occur requiring operative delivery, skilful technique is a requisite if the hazards to the infant are to be reduced to the minimum. Equally important is the knowledge of understanding what not to do, as well as what to do, for unnecessary interference in the birth processes, either by medication, operation, or anesthesia, often results in the loss of infant lives. Hence, "the desirable attendent for a pregnant woman is a physician adequately trained and experienced in obstetrics and, above all, so aware of his limitations, that, when emergencies arise which are beyond his competence, he will not delay in securing help." [9] The health officer, with the aid of the conscientious hospital administrator, can require proper organization of the maternity division of each hospital, so that well-qualified consultants are always available and are called when needed.

The chances of survival of any infant, especially the premature one, are reduced by the use of any type of analgesia and anesthesia during labor and delivery. The health officer has a responsibility in seeing that well-qualified anesthesiologists, who are trained and have been passed by the obstetric staff, are always available and supervise the administration of every anesthetic.

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[9] Gladston, I.: Maternal Deaths—The Ways to Prevention, New York, Commonwealth Fund, 1937.

IMPROVEMENT OF PRENATAL CARE

Improvement of prenatal care should lead to reduced mortality in infants in the early age and low weight groups, while inadequate prenatal care tends to increase this mortality. Hence, it is the health officer's duty to cooperate with the physician in assuring that every pregnant woman has the advantage of continuous care of the best quality throughout pregnancy.

Toxemia is amenable to control through provision of adequate prenatal care, since, if the woman with toxemia is discovered early by her physician and he administers proper treatment, in many cases the disorder may be alleviated. It is also believed by many that, with proper diet and care during pregnancy, the development of toxemia may be prevented.

Lack of adequate, early, and continuous prenatal care leads to a high incidence of premature births, particularly among those of lower socioeconomic status. Lack of an adequate diet with all of the essential proteins, vitamins, and minerals, particularly iron, to prevent anemia, are believed by many to play a most important role in these cases. When prenatal care is completely adequate it decreases the chances of premature birth in many cases and helps avoid the complications of pregnancy, labor, and delivery, thus reducing the hazards to the newborn infant. Even the best possible hospital equipment and delivery care may not be able to counterbalance the ill-effects of faulty prenatal care.

Unhygienic conditions often prevail in the homes of those of lower socioeconomic status. Furthermore, the mothers from such homes may be shiftless in their attitude toward securing adequate prenatal care. It is the health officer's duty to attempt to overcome these effects of lower socioeconomic status by encouraging the personnel entrusted with the care of these women to more thoroughly and meticulously guide them through the critical periods of pregnancy, labor, and delivery. This can be accomplished more satisfactorily when all interested agencies, including physicians, nurses, and social agencies, cooperate with the health officer. The undoubted effect of low socioeconomic status in producing high mortality in newborn infants can, in part at least, be obviated by such proper corrective action in providing adequate prenatal care.

Such corrective action involves getting the pregnant woman to the physician early. This can be done, first by making pregnancy reportable by code number, the physician being the only one having the person's name and address, and secondly, by following up each known case of pregnancy just as we follow up all contacts to contagious diseases, all infants and young children who have not been given protective inoculations against diphtheria and whooping cough, and all contacts to venereal infection. This involves, as an emergency measure, assigning our health department forces, nurses, physicians, and all other available personnel, into areas of low socioeconomic status, and literally by a door-to-door campaign, making sure that every known pregnant woman is receiving the type of care she merits just as we used a successful case-finding, case-holding program in our campaign against venereal diseases. When the quality of prenatal care is optimal, deaths early in infancy will decline.

Such a program of assuring adequate prenatal care for all pregnant women can also be made a part of a community premature prevention program, because the first step in the prevention of prematurity is to make sure that the pregnant woman goes to the physician early and continuously and receives an adequate diet, including supplemental vitamins and minerals, as well as hormones, if indicated. It will give the physician a better chance to utilize every known available means at his command to help prevent premature birth.

Immediate skilful care is provided in all cases in the city-wide premature care program such as we established in 1935, based on the plan of Dr. Julius Hess. Such a program requires that every hospital have nurses especially trained to give instant, constant, and continuous care to the small premature infant, have all of the equipment necessary to provide proper care, and have established proper procedures to give adequate obstetric care to the mother. Skilful delivery of the premature infant may aid in reducing the hazard of intracranial hemorrhage, which is so often responsible for a fatal outcome and for crippling in those that live.

A capable attendant and necessary equipment in the delivery room when a premature birth is expected is a necessity if mortality among these infants is to be reduced materially. The attendant's activities must start instantaneously after delivery to clear the infant's airways, simultaneously keeping the infant warm and in an atmosphere with sufficient oxygen and humidity. Once respiration has been established the premature infant must be promptly and properly transported to the premature nursery, where care by skilful physicians and nurses is required.

SUMMARY AND CONCLUSIONS

Deaths on the natal day are the long-neglected field of infant mortality. As a result, in the last 40 years there has been practically no reduction in the death rate of the natal day period, so that now the deaths of this period make up more than one-third of all of the infant deaths. This condition presents an alarming situation, since many needless deaths continue to occur even though much new information is appearing in the medical literature concerning the reasons for and ways of preventing them. Furthermore, utilization of all previously available acceptable information would aid in materially reducing these deaths.

I have stressed the areas that have been neglected and, at times, may have appeared to belittle the physicians' efforts and those of the hospitals and health department; however, it is by no means my purpose to give the impression that the hospitals in Chicago do not come up to the standards of those in all other parts of the United States. I have not particularly called attention to many of the things that we did to attain the enviable position of having the lowest average infant mortality rate for the 10 year period from 1940 to 1949 of any of the 10 largest cities in the United States.

Nevertheless, there is still much to be accomplished in reducing needless infant deaths, but it requires action to make any appreciable further reduction in mortality. Most effort must be concentrated on the first three days of life and on infants of low weight who die mainly from abnormal pulmonary ventilation and injuries at birth. Deaths in these age, weight, and cause groups are, as yet, far from being under satisfactory control.

As a result of careful analyses of the causes of death and the factors contributing to them, we have inevitably arrived at the conclusion that concentration of effort is required, with complete cooperation of the patient, in improving prenatal care of women of low socioeconomic status and in constantly providing for skilful natal care of the mother-to-be in the hospital by obstetricians and optimal postnatal care of the infant by pediatricians. Our failures in the past have resulted because we have not constantly and consistently provided for this type of prenatal, natal, and postnatal care.

We have now set up a program that we believe will lead to the correction of the deficiencies of the maternity services in hospitals and will enable us to make sure that every pregnant woman receives adequate care from early in pregnancy until termination of delivery, and that the infant also will be given optimal care. More detailed and complete reports of the work of the Chicago Health Department in the control of early neonatal mortality are available in reprints which can be obtained from the author.

7410 Oglesby Ave.

ROLE OF THE PEDIATRICIAN IN PREVENTION OF NEEDLESS NEONATAL DEATHS

Stewart H. Clifford, M.D., Brookline, Mass.

The pediatrician responsible for the newborn in an obstetric hospital has three major obligations. First, he must apply all available knowledge to the protection and care of his charges so that they may survive the hazards of this dangerous period of life without future handicaps. Secondly, he must strive, with the help of all allied disciplines, to extend the boundaries of present knowledge to the end that fetal and neonatal morbidity and mortality can be reduced. Thirdly, he must disseminate this special knowledge through every available medium so that babies everywhere may benefit.

A revision of the American Academy of Pediatrics' manual "Standards and Recommendations for Hospital Care of Newborn Infants—Full Term and Premature" is about to be published [1] and should be made the bible of the newborn service. This manual contains standards that must be met by every hospital, irrespective of size or resources, attempting to care for newborn infants. A strict adherence to the spirit and letter of this manual by every nursery in the country would bring a reduction in needless neonatal deaths more surely than any other step that could be taken. It is obvious that the pediatrician in charge of a newborn service must assume the personal responsibility of making a critical survey of his local situation and insist that the medical service, nursing service, physical facilities, techniques of care, and record system fulfill at least the minimum requirements.

The Chicago study [2] demonstrates the need of a fresh approach to the problem of neonatal mortality. Prior to the study, Chicago's neonatal mortality had fallen from 36.1 in 1925 to 27.5 in 1935. From the start of the study in 1935 to 1940 neonatal mortality fell to 20.3 (a reduction of 26.2%), and from 1940 to 1950 the neonatal rate went to 19.4 deaths per 1,000 live births (a reduction of only 3.9%). A similar change was occurring in the United States as a whole; from 1935 the rate of 32.5 fell to an estimated 20.2 in 1951, a 37.8% reduction. The experience of many large obstetric hospitals proves that this general neonatal mortality of 19 to 20 per 1,000 live births does not represent an "irreducible minimum" but that existing knowledge and technique, if generally applied, could reduce this rate to 14 per 1,000 live births. With nearly 4 million births in the United States this would mean a salvage of 20,000 babies a year.

Prematurity, per se, is no longer acceptable as a cause of death. Premature infants die of the same conditions and causes that kill full term infants. It is true that premature infants are especially vulnerable; although they represent only 7 or 8% of all births, they contribute 60% of the total neonatal mortality. The distribution of the causes of neonatal deaths, as reported in the Chicago study, is quite representative of the experience encountered in other parts of the country: 47.5% postnatal asphyxia and atelectasis, 16.6% injury at birth, 15.8% congenital malformations, 13.4% infections, 5.3% blood dyscrasias, and 1.4% miscellaneous.

POSTNATAL ASPHYXIA AND ATELECTASIS

The pediatrician is seldom called on to take an active part in resuscitation of the newborn. This phase has usually been completed before the baby is turned over to the pediatrician for care. This does not prevent the pediatrician from having definite ideas as to the current errors being practiced in the resuscitation process. Those old enough to remember and young enough not to have forgotten will recall that in the pre-analgesia-anesthesia days of home delivery the need to resuscitate the product of a normal pregnancy and delivery was a rare occurrence. Most of these babies cried lustily as they crossed the perineum. The same type of patient, when transferred to a hospital for delivery and given analgesia and anesthesia, produced sleepy babies, 5 to 10% of whom were so slow in breathing and crying that resuscitation was deemed advisable. There is no argument that in either the pre-

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Read in the Symposium on Prevention of Needless Neonatal Deaths before the Section on Pediatrics at the 102nd Annual Meeting of the American Medical Association, New York, June 3, 1953.

[1] American Academy of Pediatrics: Standards and Recommendations for the Hospital Care of Newborn Infants—Full Term and Premature, to be published.

[2] Bundesen, H. N., and others: The Prevention of Needless Neonatal Deaths, reprinted from the annual report of the Chicago Health Department, Chicago, 1951.

analgesia or the postanalgesia era, some infants, the products of abnormal factors during pregnancy or labor, did, and do, require artificial resuscitation. In these infants the outcome has more to do with the preexisting damage at birth than with the type of resuscitation elected. The apprehension of the pediatrician concerns the "slow babies," who are given medication and who, if treated conservatively, will survive with no ill-effect, but who, if considered to be in much danger and only salvageable by heroic methods of resuscitation, may suffer more damage from the well-meaning manipulations of unskilled resuscitations than if left discretely alone.

In his efforts to do good the physician must not do harm. I am particularly alarmed at descriptions [3] that would lead any resident to assume he could pass a bronchoscope under direct laryngoscopy in a newborn, a procedure the most skillful laryngologists avoid unless there are very specific indications. Those with large experience in performing autopsies on the newborn have not encountered laryngeal or bronchial plugging that could possibly have been relieved by direct suction. One physician informed me that he would never use his laryngoscope unless the situation were desperate (with the infant in the third or flaccid stage of asphyxia) and then not to aspirate but to introduce oxygen directly into the trachea.

The emphasis and reliance on mechanical resuscitation gadgets, be they laryngoscopes, air locks, or rocking beds, in my opinion does more harm than good. In my experience positive pressure methods of resuscitation are frequently associated with the production of emphysema and pneumothorax. Emphasis should be concentrated on correcting, before and during delivery, the problems that may cause asphyxia at birth. The Boston Lying-in Hospital is as anxious as any to save more infants' lives, but very conservative methods of resuscitation have been used. In the past five years in 23,967 live births there have been 337 neonatal deaths, a rate of 14 per 1,000 live births. Our policy is to continue our present conservative methods until another procedure has demonstrated better results. Bloxsom's [4] neonatal mortality before using his air lock was 25 per 1,000 live births, and after a similar period during which he used the air lock his neonatal rate was 19 per 1,000 live births; compared to our own results it suggests that an approach to lowering the death rate might be better based on obstetric factors rather than on mechanical methods of resuscitation.

It may take several hours for the full-blown picture of severe respiratory distress to develop in the newborn infant. All infants should be watched closely, and at the first sign of possible respiratory trouble treatment should be instituted. There are certain situations wherein this syndrome is prone to develop in the newborn: after cesarean section, after a difficult delivery, in cases of intrauterine anoxia, and in cases in which the infants were delivered of diabetic mother or prematurely (here treatment should be instituted at birth). The air passages should be cleared of fluid by postural drainage and gentle suction. The stomach should be aspirated of its fluid content. The infant should be placed in an atmosphere of 40 to 50% oxygen. Although its value has not been proved, present practice is to provide high humidity through water fog or mist added to the atmosphere of the incubator, with or without a wetting agent. As infections are apt to develop in these infants, it is good practice to give prophylactic broad spectrum antibiotics or a combination of antibiotic therapy and chemotherapy that affects both gram-positive and gram-negative organisms.

Fortunately, although these infants are seriously ill, the vast majority recover completely on or about the fourth day. Since this condition is of such short duration during which time the babies are often comatose, the giving of food or fluid orally may be disastrous through further aspiration. The infants are frequently edematous and require no extra fluid; if, however, the clinical condition demands it, fluids can best be administered by hypodermoclysis.

A frequent and preventable cause of death in otherwise normal full term and premature infants is the regurgitation and aspiration of stomach contents. This accident occurs later in the neonatal period. A tragic outcome can be prevented only by constant observation and immediate treatment by postural drainage and suction. The aspiration episode may be considered serious enough to warrant prophylactic treatment to prevent secondary infection in the lung. The risk of aspiration is one reason the propping of formula bottles is frowned on and why rooming-in is usually delayed 24 to 48 hours, or until the mother has recovered from the effects of her delivery.

INJURY AT BIRTH

Intracranial hemorrhage, the result of birth trauma, has practically disappeared from modern obstetric hospitals. If more than a rare instance occurs it is an indication that methods of obstetric management should be made the subject of critical review. Spontaneous intraventricular hemorrhages still occur in premature infants, especially very immature ones. No methods are known at present to prevent this condition. The condition is characterized by the relatively late appearance of central nervous symptoms. The prognosis is bad. On rare occasions reduction of intracranial pressure and drainage of the old blood by lumbar and intraventricular punctures may produce a successful outcome.

Subarachnoid hemorrhages are usually the result of intrauterine anoxia. Advocates for and against treatment by repeated drainage by lumbar puncture will be found. It is our policy to perform frequent lumbar punctures and continue treatments until the fluid is normal. I think more infants recover and do so without hydrocephalus developing, than if expectant treatment is performed. Subdural hematomas are not infrequent in the newborn period, and it is very important in preventing later complications to make the diagnosis early. The symptoms may be convulsions, increased anterior fontanel pressure, lethargy, vomiting, failure to gain weight, and rapid increase in head size. The diagnosis is made by subdural punctures in conjunction with lumbar puncture. The treatment is repeated tapping and probably exploration and removal of part of the membrane. All suspected cases should have neurosurgical consultations.

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[3] Beattie, J. L., and Zwerling, M. H.: Resuscitation of the Asphyxiated Newborn Infant, J. A. M. A. 152: 216-221 (May 16) 1953.

[4] Bloxsom, A.: Asphyxia Neonatorum: New Method of Resuscitation, J. A. M. A. 146: 1120-1124 (July 21) 1951.

CONGENITAL MALFORMATIONS

Infants with tracheoesophageal fistula are noted to pass excessive amounts of mucus from the moment of birth. This is enough on which to suspect the diagnosis, and by passing a catheter and finding that it ends in a blind esophageal pouch the diagnosis can be made. Early diagnosis and surgery have converted this once fatal anomaly into one with a good prognosis.

Obstruction of the second portion of the duodenum is intrinsic or secondary to malrotation of the cecum. The diagnosis is suspected when the newborn vomits persistently from birth. A flat x-ray plate of the abdomen without the need of a contrasting meal will show the large dilated stomach and first portion of the duodenum. Immediate surgery converts this once fatal condition into one with a good prognosis.

In slightly over one-half of the infants with prolonged obstructive jaundice[5] the cause is congenital atresia of the bile duct. In about one-quarter of the cases it is the result of inspissated bile secondary to erythroblastosis. In the remaining one-fourth it is the result of inspissated bile of unknown etiology and probably includes many cases of viral or infectious hepatitis. The establishing of an accurate diagnosis is very important in these patients, for in the inspissated bile group expectant and supportive medical treatment is accompanied by spontaneous recovery in all cases secondary to erythroblastosis and in 80% of the unknown etiology group. On the other hand, in congenital atresia of the bile ducts the defect could be corrected surgically in only 20% of the cases, and the operative mortality in the repaired cases was 80%.

It is imperative that those infants who have a condition from which they will recover spontaneously not be exposed to the possibility of operative death caused by surgical exploration. For this reason many physicians advise a two month waiting period in all infants with jaundice before surgical exploration is attempted. On the other hand, Gellis believes that true atresia can be disgnosed if a sufficient number of laboratory studies have proved that no bile is coming through the liver into the intestine. If no urobilinogen is appearing in the urine and if the bilirubin trend is generally upward. then surgical exploration should be carried out with no further delay.

INFECTIONS

It has been the general contention that the death of any infant from infection, after having survived the first week of life in good condition, must be considered a preventable death until proved otherwise. Epidemic diarrhea of the newborn is an example of one highly fatal condition that can be either prevented or controlled by the strict practice of approved nursery technique. The premature infants, owing to their natural susceptibility and to their prolonged hospital stay, are particularly prone to infection. This is especially true in nurseries where premature infants are admitted after being born outside. We have had an actual demonstration in the premature nursery of the Children's Hospital of how the needless loss of life from late infection can be brought under control. All of the premature infants cared for in this nursery were delivered outside our hospital and admitted for care and treatment. Between 1944 and 1947 there were 508 premature infants admitted, with a mortality of 50% (see table). Thirty-two per cent of the deaths took place after 1 week of age, and autopsy showed 85% of these deaths due to infection.

A program attempting to control this late infection problem was completed in late 1947. This plan included: (1) reconstruction of the nursery, isolating it and protecting it from contact with the rest of the hospital by as many barriers as possible, (2) terminal sterilization of all formulas and fluid for oral administration either by flowing steam or by steam under pressure, (3) a nursing and medical staff who dealt exclusively with the premature infants, (4) individual isolation of each infant from admission until ready for discharge, in an Isolette, and (5) prophylactic administration of 50,000 units of aqueous penicillin intramuscularly every six or eight hours and 20 to 30 mg. per kilogram of body weight of sodium sulfadiazine per 24 hours intramuscularly for 7 to 10 days. This procedure was carried out in all infants over 3 days of age and to all at any age whose history or examination caused one to even suspect contact with infection or possible injury or abnormality. The results of this program were dramatic and appeared at once. With 444 admissions between 1948 and 1952, the overall mortality fell to 34% and the per cent of those infants dying after 1 week of age fell from 32% to 8% (see table).

Mortality of Premature Infants in the Children's Hospital Nursery Before and After the Activation of a Program to Combat Infection

Age at Death (Days)	1944-1947 (%)	1948-1952 (%)
0- 7	68	92
8-21	13	4
22-35	12	1
36 +.	7	3
Total admissions	508	444
Mortality	50%	34%

There is an increasing concern about deaths from infection occurring in the first hours or days after birth. These infections must be acquired in utero or during the birth process. In some cases it is suspected that premature rupture of membranes, vaginal examinations stripping of the membranes, or operative manipulations may introduce the infection. In others maternal disease may be the cause; however, in many no likely etiological factor can be discovered.

Of the 58 premature infant deaths that took place at the Boston Lying-in Hospital during the 12 months of 1952 only one death took place after the first week of life. Six of the premature deaths occurring in the first seven days of life were due to infection (10%). Four of these infants had bronchopneumonia and died at the ages of 1¾ hours, 4 hours, 40 hours, and 43 hours, respectively. One died at 40 hours with omphalitis. One died at five days with purulent Escherichia coli meningitis and septicemia. Of the 22 full term infant deaths, 3 were due to infection. Two of these infants died at 3 days of age, one with E. coli bronchopneumonia, and the other with E. coli septicemia. The third died at 48 hours with early bronchopneumonia. It is clear that the pediatrician must obtain a very careful history of possible infection in the mother during late pregnancy and labor and be prepared to institute prophylactic therapy in appropriate circumstances.

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[5] Hsia, D. Y. Y., and others: Prolonged Obstructive Jaundice in Infancy, A. M. A. Am. J. Dis. Child. **84**: 470-472 (Oct.) 1952; Prolonged Obstructive Jaundice in Infancy: General Survey of 156 Cases, Pediatrics **10**: 243-251, 1952.

BLOOD DYSCRASIAS

Hemorrhagic disease of the newborn was once a popular and common diagnosis, but it is now of rare occurrence. It is now realized that this is not a true disease but a syndrome that can be due to many causes. As these causes, such as erythroblastosis, sepsis, anoxia, and trauma, are recognized the bleeding is ascribed to its etiological cause and no longer referred to as hemorrhagic disease. A small residue of cases remain that appear to be caused by a true defect in the blood coagulation system such as congenital absence of fibrinogen. Such infants require careful study and supportive transfusions. The relation of vitamin K and abnormal prothrombin time to bleeding in the newborn is still not established. The rare bleeding referred to occurs with or without vitamin K having been administered to the mother and infant. There is need for a carefully controlled study to settle this relationship. Until such clarification is forthcoming, the point of wisdom would appear to be to continue administration of vitamin K to the mother before delivery and to the infant at birth.

Recent controlled studies [6] have proved the value of exchange transfusions in treating hemolytic disease of the newborn (erythroblastosis fetalis) as compared with single or multiple small transfusions. With exchange transfusions the mortality was 13%, whereas in matched cases treated by single transfusion it was 37%. These studies further demonstrated that the induction of labor three to five weeks before expected delivery in Rh-negative women resulted in a lower survival rate than when labor was allowed to proceed spontaneously.

Exchange transfusions have been shown to prevent the occurrence of kernicterus.[7] A microdetermination has been developed whereby bilirubin determinations can be performed on capillary blood. A correlation exists between the height of the bilirubin level and the occurrence of kernicterus. The bilirubin may act merely as an indicator of some other unknown substance responsible for the toxic damage to the brain. The bilirubin level rises very rapidly in the first few days of life in infants with hemolytic disease. Exchange transfusions, repeated if necessary, can lower the bilirubin level, and when this level has been kept below 20 mg. per 100 ml. kernicterus has not developed.

SUMMARY AND CONCLUSIONS

The present general neonatal mortality is between 19 and 20 per 1,000 live births. Many large obstetric hospitals in this country have demonstrated that existing knowledge and methods can lower this rate to at least 14 per 1,000 live births. The various causes of neonatal deaths are reported, and methods by which this loss can be prevented or minimized are discussed. In every instance in which methods to prevent needless loss of newborn infants are considered one immediately encounters the importance of the human factor. Reduction in neonatal mortality cannot be legislated; only through the enlightened cooperation of the many interested disciplines will real progress be made.

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[6] Mollison, P. L., and Walker, W.: Controlled Trials of Treatment of Haemolytic Disease of Newborn, Lancet 1: 429-433, 1952.

[7] Hsia, D. Y. Y.; Allen, F. H., Jr.; Diamond, L. K., and Gellis, S. S.: Erythroblastosis Fetalis: Serum Bilirubin, A. M. A. Am. J. Dis. Child. 84: 640-642 (Nov.) 1952; Erythroblastosis Fetalis: Studies of Serum Bilirubin in Relation to Kernicterus, New England J. Med. 247: 668-671, 1952.

HOSPITALS AND PREVENTION OF NEONATAL MORTALITY

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Survival of the newborn is a matter of national importance. The discrepancy between our birth rate and that of some other nations makes it so. It is imperative that we make every effort to compensate for our low birth rate by keeping infant mortality at a minimum. Studies conducted by public health workers, research undertaken by physicians, new concepts in nursing techniques, and improvement in the design, equipment, and personnel of hospitals have all helped to prevent neonatal mortality, but much remains to be done. It has been said [1] that improved hospital care alone can reduce the annual death rate among premature infants by 20,000. This is a challenge that must be and has been accepted by hospitals.

As community organizations, hospitals must bear a fair share of the task of prevention of neonatal deaths. Theoretically, hospitals provide the facilities to assist physicians and nurses in practicing their arts to the best advantage. Actually, hospitals are required to do much more than that. As educational institutions, they are active partners of the public health system in educating the people to better standards of health. They do this by participating actively in integrated public health programs. They cooperate closely with the medical, nursing, and paramedical professions in teaching and research. They also maintain their services at the highest peak of efficiency so that the quality of medical care rendered by physicians and nurses within their confines may also be of the best. With the medical profession, hospitals have voluntarily embarked on a program of self-accreditation [2] with the object of improving hospital care throughout the nation.

In the specific area of hospital care of the newborn, hospitals are working closely with the specialities of

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Read in the Symposium on Prevention of Needless Neonatal Deaths before the Section on Pediatrics at the 102nd Annual Meeting of the American Medical Association, New York, June 3, 1953.

[1] Daily, E. F.: What Hospitals Can Do About the High Premature Infant Mortality Rate, Hospitals 25: 41 (Aug.) 1951.

[2] The Joint Commission on Accreditation of Hospitals Bulletin, vol. 1 (Nov) 1952.

obstetrics and pediatrics in an attempt to set minimum standards that will assure adequate care of the newborn and prevention of neonatal mortality. A measure designed to prevent prematurity, for example, is the scrutiny of the rate of cesarean sections in the hospitals. If the cesarean section rate exceeds 5% of the total births in the hospital, the medical staff of that hospital is urged to investigate its obstetric practices. In the areas of public health education, prenatal care, and obstetric and pediatric practice, hospitals can and do render much assistance to the medical and nursing professions.

The prime responsibility of the hospitals, however, begins with the birth of the infant and continues through the stay of the infant in the hospital until it is discharged. The not very profound observation has been made that the better the care in the hospital, the lower will be the mortality among newborn infants. The tremendous resources now available in the medical, nursing, public health, and hospital fields today make this statement axiomatic.

HOSPITAL PERSONNEL

The hospital contribution to the problem of prevention of neonatal mortality depends to a large extent on the trustees and the administrators of each hospital. Unless these persons are interested, the vast store of scientific knowledge concerning the newborn may be wasted or remain unused. Initially, the greatest attribute that a hospital administrator can possess is a strong desire to do something about the problem of neonatal mortality. Next to this, he must have the ability to stimulate others to want to do something about it too. As coordinator of the efforts of professional, technical, and paramedical staff in his hospital, he can be a powerful inspiration to them in achieving the desired goal. But his zeal must extend beyond the personnel of his own hospital and must reach the interest of the medical and nursing professions, the public health workers, and the people of his community. This is much to expect of a hospital administrator, but, if he has the "will to care," the task is half accomplished. Although he may not know very much about the problem in the beginning, the resourceful hospital administrator takes measures to obtain the knowledge, the facilities, and the equipment needed to achieve a good program of neonatal care.

As a first step, the hospital administrator must provide personnel, accommodation, and facilities to assist the medical staff of the hospital in giving proper care to the patients. He seeks to attract the best qualified physicians to his hospital and to his community, so that the hospital facilities can be used to best advantage. To meet this particular problem, he will invite competent obstetricians and pediatricians to practice in his hospital. There may be limitations, however, to his opportunity of obtaining the best men in the field. His hospital may not be large enough to support the most competent specialists, and his community may not be extensive enough to give them the scope their specialties demand.

Failure to secure certified specialists, however, need not dismay the enterprising hospital director. A hospital is only obliged to render the best service that it can with the staff and the facilities at hand. He will try to interest a good general practitioner in the problem of newborn care and encourage him to acquire more specialized knowledge on the subject. One enthusiastic general practitioner in a community can make a greater contribution toward improving the care of the newborn than a dozen uninterested specialists.

Although he may not be competent to pass judgment on the quality of medical practice in the hospital, the hospital administrator can still contribute to better care by calling attention to national standards established for the care of the newborn by such bodies as the American Academy of Pediatrics.[3] Administrative insistence on minimum standards in the hospital should not be resented by the medical staff or construed as lay interference in medical practice, for the hospital administrator has a duty to insist. Everyone is presumed to be interested in reducing mortality, and, if recommendations of national, public-spirited organizations are to be of any value at the local level, they must be put into effect.

NURSING CARE

Almost as important as the medical care is the quality of nursing care of newborn infants in the hospital. The nursing care of the newborn is now recognized as a specialized art that requires much knowledge and experience. As in the medical specialties, the highest quality of nursing care may be restricted by a lack of qualified personnel and for the same economic reasons. Once again, the "will to care" is the greatest single factor in good nursing care of the newborn. An interested general duty nurse should be found and stimulated to acquire more knowledge about neonatal care. If facilities for training nurses in the care of the newborn are available nearby, the resourceful hospital administrator will arrange to have interested members of his nursing staff instructed there. If adequate facilities for such training are not readily available, the hospital may set aside a sum of money provided by the trustees or by the women's auxiliary of the hospital for training nurses at a larger hospital in which acceptable procedures are in use. When the volunteer nurse has learned the techniques, she can teach others. In this way, a reasonably good nursing staff to care for the newborn can be assured, even to a small hospital of limited means.

LOCAL ASSISTANCE

The smart hospital administrator takes advantage of all local assistance facilities to secure better care for his patients. The care of the newborn is no exception to this principle. The health departments of the municipality, region, or state in which the hospital is located may have much to offer in the way of advice, personal consulting service, or even financing. The administrator will certainly enlist the help of the local medical and nursing societies, voluntary organizations, social agencies, and hospital associations to advance his purpose. In the United States, sources of available help are almost unlimited if hospitals will take the trouble to look for them.

Many government authorities have enacted special laws for the hospital care of the newborn. These laws are a welcome aid to raising the standards of medical and nursing practice in hospitals. In some cases, however, they do not go far enough; they are minimum only. Hospital administration has the duty to see that the laws are complied with, but no hospital should be satisfied with minimum standards. It should strive to give the best. Thus, regulations for the management of newborn nurseries should be enacted within each hospital, and, in preparing such regulations, the responsibility falls squarely on the medical and nursing personnel of the hospital. In this situation the hospital administrator provides the staff work for writing regulations but should insist at least on the minimum standards recommended by the national bodies even in the face of opposition or apathy.

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[3] American Academy of Pediatrics: Standards and Recommendations for Hospital Care of Newborn Infants: 1953 Revision, to be published.

WHAT MUST BE PROVIDED

On the material side, the hospital administrator is responsibile for providing adequate accommodations for the newborn. This involves planning for square footage, air space, air conditioning, and other items of adequate design and construction. Equipment must be procured, such as incubators, resuscitation apparatus, oxygen, and similar items that are necessary to the proper care of the newborn. The administrator must maintain, as well as provide, in good working order the accommodations and equipment so that the tiny patients can obtain the maximum benefits from the facilities that have been provided.

In planning facilities and selecting equipment, the hospital administrator leans heavily on the medical staff. Nevertheless, he is not without resources, even in the absence of such advice, for the architectural and functional layout of the nursery has been standardized to some extent by the United States Public Health Service,[4] and the minimum requirements have been laid down. In the same way, the American Hospital Association conducts a continuous program of research on ways and means of improving service in the nursery. To give some examples, the association is presently inquiring into the efficiency of incubators and is following with keen interest the reports of research that is presently being conducted on the cause of retrolental fibroplasia. The solution to this problem might involve a completely new approach to the care of the premature infant in the nursery with consequent changes in design and modification of equipment presently in use. In the last analysis, however, it is the medical staff or the pediatric staff, if there is one, that has the main responsibility of giving proper advice as to whether the layout in the hospital is satisfactory or not.

ASPECTS OF CARE

The various procedures carried on in the nursery for the newborn are also a concern of the hospital administrator. The preparation of the formulas, for example, involves many administrative services. A special room must be set aside; techniques must be established and maintained; and the ingredients must be mixed and delivered to the small patients at the right time, at the right temperature, and by the right person. The drugs and the materials for the treatments prescribed must also be provided by the hospital and must be of the highest quality.

Having procured the personnel, the accommodations, the equipment, the supplies, and the administrative services, the responsibility of the hospital administrator is not nearly ended. By means of a system of reporting and recording, he must be in a position to evaluate the services rendered by his hospital and by the physicians who practice in it. Possibilities of improvement in the service must be quickly called to the attention of the medical and the nursing staff. It is standard practice, therefore, to alert the hospital administrator as soon as a case of diarrhea is discovered in the nursery. He must mobilize all his resources to isolate the patient and to prevent further spread to other patients. An epidemic of this disease is a black mark against the hospital. He may also have to do a lot of explaining to the health department.

The hospital administrator is as much concerned with the mortality and morbidity of the newborn in his hospital as are the physicians and nurses on his staff. A poor record is not only a reflection on the quality of medical and nursing practice in the hospital but also a reflection on the quality of his administration. From the standpoints of both public and personal interest, the hospital administrator must do everything in his power to reduce mortality in the newborn in his hospital.

FINANCE

Needless to say, a good program to prevent neonatal mortality involves finance. The care of the newborn, and especially that of the premature infant, is a costly undertaking. Ways and means must be found to finance the program, and this falls within the domain of the administrator. The burden of paying for this service should fall primarily on those who use them, namely, the parents of the young patient. Unfortunately, since most parents are in the low-income, younger-age group, they are seldom able to pay the full cost of maintaining such a program. Some insurance plans have been persuaded to underwrite the full cost of patient stay in the newborn nursery, but these are few. In some states and municipalities, funds are available to assist in maintaining a neonatal program. In some hospitals, the unpaid balance is distributed throughout other departments in the hospital by means of an accounting device. This sometimes involves raising room rent for adult patients or adding a little more to the charges for roentgenograms or laboratory procedures. Some hospitals feel that this practice is justifiable in the public interest. In other hospitals, the trustees have set aside special funds for the purpose of making up the deficit between what the patient can pay and the actual cost of maintenance. Such funds may come from endowments or public subscription.

It cannot be denied that the saving of a newborn baby is a worthy cause with a tremendous public appeal. This aspect of the problem is not overlooked by the competent hospital administrator. Having organized a woman's auxiliary in his hospital, he should experience little difficulty in financing a program of this kind. He "never underestimates the power of a woman," and a prompt and enthusiastic response usually attends any appeal to help save infant lives whether the request be for a new piece of equipment or funds to train nurses in the care of the newborn or merely to make up the deficit in the nursery service. The public relations resources of the hospital are easily available to promote a campaign to remodel or rebuild a nursery, and the judicious approach to the community has rarely failed to produce results for such a worthy cause.

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[4] Elements of the General Hospitrl: Revised Edition, Hospitals 26: 109, (April) 1952.

SUMMARY AND CONCLUSIONS

The hospital administrator can do much to prevent or reduce neonatal mortality on his own initiative, but lacking the precise professional and technical knowledge, he requires the assistance and advice of his physicians and nurses without whom he can achieve a minimum success only. Separately, all the interested parties, physicians, specialists, nurses, public health workers, and hospitals, have achieved a marked degree of success in lowering mortality in the newborn. It is of relatively recent date that a common, cooperative approach to the problem has been undertaken by all these groups acting collectively and together. There seems to be no limit to what can be accomplished in this field if all will contribute their knowledge, experience, interest, enthusiasm, and "will to care" to the common enterprise.

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CLINICAL NOTES

CORRECTIVE BRACE FOR THE UPPER EXTREMITY IN HEMIPLEGIA

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and
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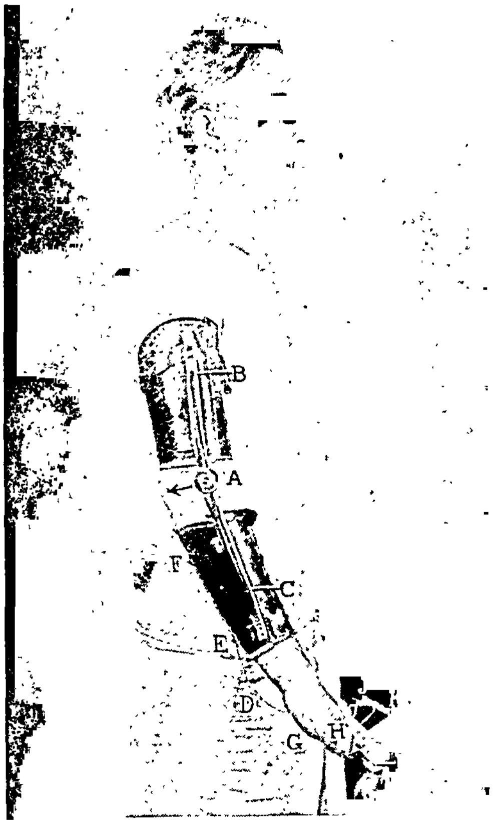
In the first few days after the occurrence of hemiplegia, the affected upper extremity is limp and appears flaccid, but actually, the muscles are spastic. After a variable short time a typical position is assumed. The upper extremity is adducted, the elbow flexed, the forearm pronated, and the wrist, fingers, and thumb flexed. If physical therapy and rehabilitation measures are not begun early, permanent contractures of muscles develop, and the upper extremity becomes fixed in the position described. There is a slow improvement in the brain tissue because of a partial resolution of the lesion. This results in improvement in the potential motor ability of the cortex. Unfortunately, this organic improvement of brain tissue cannot be translated into purposeful volitional movements, because the muscles and joints of the upper extremity have been fixed by contractures.

Many patients with hemiplegia of long duration have an increased potential ability to execute volitional movements of the paralyzed upper extremity, provided the muscles and joints are not fixed in a contracted state and allow for a range of motion. Heat and passive stretching, both manual and with pulleys, can be used to overcome these contractures. Since treatment is usually given only once daily in the average office or clinic, progress of the patient is extremely slow.

A special upper extremity brace has been developed to overcome the contractures as quickly as possible. The main feature of the brace is a series of springs that act at the elbow, wrist, fingers, and thumb in a direction opposite to that of the contractures. The constant tension produced by these springs gradually overcomes the contractures. The brace is taken off for physical therapy and is put back for its tension effects between treatments. It can be used for overcoming flexion contractures of the upper extremity from any cause.



A steel spring, *A*, is attached to the brace at posts *B* and *C*. The spring produces tension in the direction shown by the arrow, forcing extension of the elbow joint. The wrist is extended by a curved steel spring, *D*, attached to the bands of the forearm section of the brace at *E* and *F* and to the palmar pad, *G*, of the "reverse knuckle bender" (Bunnell, S.: Surgery of the Hand, ed. 2, Philadelphia, J. B. Lippincott Co., 1948, p. 137, fig. 96, Q). The "reverse knuckle bender," *H*, *I*, is tensed by rubber bands, *J*, *K*, producing extension at the metacarpophalangeal and interphalangeal joints. Rubber bands are attached to a thumb cuff and to a spring steel wire riveted to the radial side of the forearm cuffs, producing abduction of the thumb.

Pulley exercises are used to overcome the abduction contractures at the shoulder joint. A pulley is fixed to the ceiling or the upper part of a door jamb, and a loop is made in one end of the pulley rope to suspend the affected hand. The other end of the rope is passed through the pulley, and a series of knots for proper gripping is made at about three inch intervals. The patient grasps the rope with his unaffected hand and produces active assistive and passive motion in a seesaw manner to the involved upper extremity.

Chief, Physical Medicine Rehabilitation Service (Dr. Rudin), Supervisor, Orthopedic Brace Shop (Mr. Cronin), and Assistant Supervisor, Orthopedic Brace Shop (Mr. Croucher), Veterans Administration Hospital, Fort Howard.

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NEW ANTIEMETIC DRUG

PRELIMINARY REPORT

Dale G. Friend, M.D.
and
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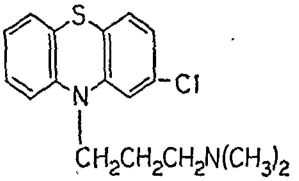
Nausea and vomiting constitute a symptom complex as distressing and almost as common as pain. It is surprising how little had been learned about the mechanism and control of nausea and vomiting until comparatively recent times. Everyone has experienced these symptoms at some time or other and has felt keenly the lack of really efficient measures for their relief. In the laboratories of Rhône-Poulenc, a chlorinated phenothiazine was synthesized, which has the following formula:



10-(γ-dimethylaminopropyl)-2-chlorophenothiazine hydrochloride.

This substance, which will be referred to as compound 2601-A, was soon shown by French investigators to have several unique properties,[1] among which is the ability to block the emetic effect of apomorphine in animals. This immediately suggested that it might be a highly useful antiemetic drug.

METHOD

After thorough studies in animals and a limited number of patients had shown the drug to be without observable toxic effects,[2] studies were initiated at the Peter Bent Brigham Hospital to determine its effectiveness against a variety of agents and conditions that cause nausea and vomiting in patients.

Compound 2601-A was first used cautiously in patients in the terminal stage of carcinoma and uremia, each condition being complicated by serious nausea and vomiting. A dose of 25 or 50 mg. was given intramuscularly initially and again at four hour intervals, for three or four days, if necessary, to control the symptoms. Usually the initial dose arrested the vomiting, and the remaining doses could be given orally. The usual dose for oral use was 25 mg. given three or four times a day. In some patients, a dose of 50 mg. given three or four times a day was employed, but results were so satisfactory with the 25 mg. dose that it was seldom necessary to use the higher one.

RESULTS

To date, 70 patients have been studied, with gratifying results. The table shows the effect of the drug on nausea and vomiting caused by a variety of conditions and drugs.

Without doubt, compound 2601-A has a powerful selective effect against nausea and vomiting and is effective whether given orally or intramuscularly. It acts in almost all patients without producing any degree of sedation or other evidence of action on the central nervous system. It is much more effective than diphenhydramine, tripelennamine, or dimenhydrinate as an antiemetic, since it promptly proved effective in patients in whom vomiting had not been relieved by these drugs.

Nausea and vomiting ceased usually within one hour after injection or oral administration of compound 2601-A. Often patients who had been unable to take anything by mouth for days were able to eat their next meal. In one patient with nausea and vomiting of three days' duration, secondary to toxic labyrinthitis, the vomiting immediately cleared, but the dizziness remained; the patient was, however, able to enjoy his meals. Another patient who had nausea, vomiting, and hiccuping of 10 days' duration, secondary to uremia, was relieved of gastrointestional symptoms, but the hiccups remained unabated.

Effect of Compound 2601-A on Nausea and Vomiting

Cause of Nausea and Vomiting	Result of Use of Compound 2601-A
Diseases	
Carcinomatosis	Controlled
Labyrinthitis	Controlled
Lymphomatosis	Controlled
Psychological vomiting	Decreased
Uremia	Controlled
Vomiting of pregnancy	Controlled
Drugs	
Disulfiram (Antabuse) plus alcohol	Prevented
Folic acid antagonist	Stopped promptly
Aureomycin	Stopped promptly
Codeine	Stopped promptly
Meperidine	Stopped promptly
Methadone	Stopped promptly
Morphine	Stopped promptly
Nitrogen mustard	Helped prevent
Oxytetracycline (Terramycin)	Stopped promptly
Protoveratrine	Stopped promptly
Urethane	Stopped promptly

A series of 35 patients who were under the influence of alcohol were given 1.5 gm. of disulfiram (Antabuse) and 150 to 175 mg. of compound 2601-A over 48 hours, a regimen suggested by the observations of Martensen-Larsen,[3] who found diphenhydramine (Benadryl), sodium chloride, and disulfiram an effective combination in the treatment of such patients. After the disulfiram-compound 2601-A treatment, no nausea or vomiting developed, and the patients rapidly recovered from their alcoholic state with a minimum of undesirable residual effects. Often, they promptly went to sleep and awakened sober and relaxed. They were able to return to their employment much more promptly than was possible after use of any of the other well-recognized methods of relieving alcoholism. In a few patients who had nausea and

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The drug used in this study (compound 2601-A) was supplied by Smith, Kline & French Laboratories, Philadelphia. It was originally developed by the Rhône-Poulenc Special Research Laboratories in France under the generic name chlorpromazine (4560 R.P.).

[1] Courvoiser, S., and others: Propriétés pharmacodynamiques du chlorhydrate de chloro-3 (dimethylamino 3′ propyl)-10 phenothiazine (R.P.4560): Etude experimentale d'un nouveau corps utilisé dans l'anesthésie potentialisée et dans l'hibération artificielle, unpublished data, 1952. Laborit, H.; Huguenard, P., and Alluaume, R.: Un nouveau stabilisateur végétatif (LE 4560 RP), Presse méd. **60**:206-208, 1952. Courvoiser, S., and Ducrot, R.: Arch internat. pharmacodyn., to be published.

[2] Smith, Kline & French Laboratories, Philadelphia: Personal communication to the authors.

[3] Martensen-Larsen, O.: Erfahrungen bei der Behandlung des Alkoholismus mit Antabus, Die therapiewoche (No. 3, 1951/52) December, 1951.

vomiting from the disulfiram-alcohol reaction, compound 2601-A promptly suppressed the nausea and vomiting.

Nausea and vomiting due to medication with aureomycin, oxytetracycline (Terramycin), protoveratrine, or narcotic analgesics were also promptly controlled. Some patients receiving nitrogen mustard therapy were protected from the usually attendant nausea and vomiting if compound 2601-A was given. No change was made in the methods of administration of the nitrogen mustards; sedation was administered as usual, and the mustards were given in divided doses. If 75 mg. of compound 2601-A was given in three divided doses within a 12 hour period prior to intravenous administration of nitrogen mustards and for a similar period after such therapy, the nausea and vomiting was prevented or greatly ameliorated.

SIDE-EFFECTS

Dryness of the mouth and mild sedation developed in a few patients. In three, after a dose of 50 mg. of the drug had been given, transient faintness, flushing of the face, and palpitation developed. One of these patients was an 80-year-old, severely asthmatic patient, in whom, incidentally, the asthma cleared for several hours. Occasionally, a patient experienced some slight pain and tenderness at the site of intramuscular injection. Careful clinical and laboratory studies, including electrocardiograms, hematological surveys, and urinalyses, of patients who received compound 2601-A in a dose of 25 mg. three or four times a day for three months have shown no indication of untoward effects. The following case reports illustrate the use of this drug in various conditions.

REPORT OF CASES

CASE 1.—A 35-year-old woman entered Peter Bent Brigham Hospital with disseminated lupus erythematosus of 5 years duration and chronic renal insufficiency, an elevated blood urea nitrogen level (220 mg. per 100 cc.), and severe hypertension. Nausea and vomiting developed, possibly because of the severe uremia. The patient was given 50 mg. of compound 2601-A intramuscularly on Dec. 23, and 100 mg. in divided doses on Dec. 25, with complete clearing of the nausea and vomiting. The patient ate her meals for the first time in a week and felt much better after the use of the drug. No toxic side-effects were observed, despite the severe renal damage and damage to other organs brought about by the disease. As long as the patient has received the drug, nausea and vomiting have remained suppressed. If a placebo was substituted, they returned within about 48 hours. This patient has been maintained on 25 mg. three times a day for almost three months.

CASE 2.—In October, 1952, a 53-year-old man was found to have peritoneal lymphomatosis. At that time he was given radiation therapy and did well. In early December, more radiation therapy was required, and subsequent to this nausea and vomiting developed. At first they were controlled by the use of dimenhydrinate, but later this drug seemed to make them worse. The patient continued to vomit yellowish fluid three to five times a day and grew progressively weaker and more fatigued. On Dec. 27, compound 2601-A therapy was started with a dose of 25 mg. three times a day. On the first day, the patient received the drug at 10 a. m., 3 p. m. and 9 p. m. On Dec. 28, he was doing well. There was no nausea nor vomiting, and he tolerated a soft diet. Compound 2601-A was then given in doses of 25 mg. one hour before meals. On Jan. 1, the patient was tolerating food remarkably well; on that day, he was given 12.2 mg. of nitrogen mustard intravenously, and on Jan. 2 this dose was repeated. During this time compound 2601-A was being administered continually in a dose of 25 mg. three times a day. On Jan. 4, it was reported that the patient was eating better and had no pain; despite having received two courses of nitrogen mustard, he apparently was able to tolerate food well.

CASE 3.—A 72-year-old man entered the hospital with carcinoma of the prostate, chronic low abdominal pain, loss of weight, and fever of several weeks' duration. A previous trial of penicillin therapy had resulted in penicillin sensitivity, and, as a consequence, aureomycin was given in the hope that the fever could be brought under control. With a dose of 2 gm. a day of aureomycin, severe nausea and vomiting developed, which seriously incapacitated the patient. This continued despite withdrawal of the drug, and the patient was given compound 2601-A, 50 mg. intramuscularly and then 25 mg. orally four times a day for the next two days. Four hours after he received the intramuscular injection, all nausea and vomiting disappeared, and the patient fell asleep. It was noted that he appeared drowsy and tended to sleep more than normally. This was thought to be a result of relief from the severe nausea, vomiting, and retching that had been experienced for the previous 48 hours. The next morning the patient ate the most food he had taken in days, and he has since shown steady improvement in appetite.

CASE 4.—A 60-year-old white man, chronically alcoholic, who had been taking disulfiram for 19 months, stopped taking the drug and again began to drink. He had been on a drinking spree for about one week and had consumed large quantities of alcohol when he was given 1.5 gm. of disulfiram over a 24 hour period by his wife. When he was first seen a moderately severe disulfiram-alcohol reaction had developed. He was flushed and had tachycardia, with a heart rate of 130 beats per minute. He was not hypotensive but was nauseated and was vomiting vigorously. One hundred milligrams of compound 2601-A was given intramuscularly. The nausea and vomiting promptly stopped, and within 24 hours the patient could tolerate bland foods. He made quick and uneventful recovery from this reaction.

CASE 5.—A 34-year-old housewife entered the hospital because of severe anuria from lower nephron nephrosis. When she was 22 weeks pregnant, the placental membrane had ruptured spontaneously, and two days later she had delivered a macerated fetus. Vaginal crepitus was noted at that time. Within two days marked bronzing of the skin had developed. The hematocrit had dropped from 36 to 10% Hemoglobinuria and finally complete urinary shutdown had developed. Laboratory studies showed a blood urea nitrogen level of 200 mg. per 100 cc., a carbon dioxide combining power of 15 mm. per liter, and a serum chloride level of 114 mEq. per liter. Clostridium perfringens was cultured from a blood specimen. For six days prior to admission, the patient had had persistent and progressive nausea and vomiting. She was immediately given compound 2601-A intramuscularly, 50 mg. four times a day. After the initial injection, nausea and vomiting ceased. The next morning the patient's appetite returned, and she was willing to take food by mouth. Compound 2601-A therapy was stopped after 48 hours and she remained symptom-free for three days, when nausea and vomiting recurred. Again they were controlled with use of the compound.

SUMMARY

A new drug, 10-(γ-dimethylaminopropyl)-2-chlorophenothiazine hydrochloride (compound 2601-A) was shown to be effective in suppressing nausea and vomiting caused by a wide variety of clinical conditions, e. g., carcinomatosis, labyrinthitis, lymphomatosis, and uremia. It was also found effective in preventing or controlling the nausea and vomiting caused by disulfiram (Antabuse) administration to patients under the influence of alcohol and that produced by aureomycin, folic acid antagonist, codeine, meperidine, methadone, morphine, nitrogen mustard, protoveratrine, oxytetracycline (Terramycin), and urethane therapy. The only side-effects observed were dryness of the mouth, occasionally mild sedation, and rarely a mild transient attack of faintness, palpitation, and flushing of the face.

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SPECIAL ARTICLES

MEDICINE, WARFARE, AND HISTORY

John F. Fulton, M.D., New Haven, Conn.

It is not commonly realized that many of the most significant advances in medical science have been made by medical officers in the armed services or by civilian physicians working under the stimulus of wartime exigency. Whereas the ultimate compensations of war to any society are usually few and seldom recognized, in the field of medicine, over the years, they have been numerous and many of them highly important. A number of examples may be cited from the historical record.

In his illuminating series of notes on the history of military medicine, the late Col. Fielding H. Garrison[1] made the observation that, while there were military surgeons in ancient times who occupied positions of responsibility and respect in the armies of Greece and Rome, it was the Swiss Confederation, in the 14th century, that antedated all other nations of modern Europe in state care of the wounded. Municipal ordinances were issued notifying the individual soldier that his government was behind him and would look after his welfare on the field of battle. The eminent historian Conrad Brunner[2] points out further that, from the time of the battle of Laupen in 1339, the Swiss archives are replete with records of monies distributed for the care of the wounded and their dependents. Brunner also discovered that barber-surgeons were engaged by individual Cantons to attend the wounded after battle. The Swiss thus set an example to all of the other warring countries of western Europe.

In France in the 1470's we find that Charles the Bold, Duke of Burgundy, had placed a surgeon in each company of 100 lancers, that is, one surgeon to 800 men. It is also recorded that the lancers received £ 12 monthly from the Duke's coffers while his surgeon-physicians received only £ 5. When Edward IV of England joined Charles the Bold in the campaign against Louis XI, he brought with him a chief physician, two "body physicians," a surgeon, and 13 assistant barber-surgeons. These men, who attended the sick and wounded, gained valuable experience for dealing with civilian problems, injury, and disease when the wars had ended.

A century later we find Andreas Vesalius, founder of modern anatomy, serving as a military surgeon in the armies of Charles V. His contemporary, Ambroise Paré, who lived through the reigns of seven French monarchs and served four of them, not only introduced the ligature for arresting hemorrhage resulting from injury or amputation but also used antiseptic salves for dressing wounds. A man of high character, Paré spoke with authority and did more to place surgery on a modern basis, as Vesalius had anatomy, than any other person until the time of Joseph Lister. Paré was also a pioneer in advancing the art of rehabilitation of the injured. He devised many forms of prosthesis, including wooden arms, legs, mechanical fingers, false noses, and ears—advances that again were adopted by civilian surgeons.

During the 17th and first half of the 18th century, advancement of military medicine proceeded slowly, and there was no one comparable to Paré until the last half of the 18th century, when James Lind, the great British naval surgeon, appeared on the scene. There was, however, one notable figure in the 17th century, Richard Wiseman, who served the royalist armies in England throughout the civil war and after the Restoration and who was responsible for many improvements in surgical technique, including the art of amputation, especially in the case of gunshot wounds affecting the joints. His book, "Severall Chirurgicall Treatises," published in 1676,[3] is one of the important landmarks in the history of surgery, both military and civilian.

To James Lind, M.D. (1716-1794) (to be distinguished from James Lind, M.D. [1736-1812], also a Scotsman) of Edinburgh, a surgeon long in the service of the Royal Navy, we owe the first clear-cut proof that scurvy can be prevented by the use of citrus fruits among sailors on long ocean voyages. His "Treatise on the Scurvy," published in 1753,[4] is a classic, and as a result of it a dread disease, common not only among seamen but in civilian populations where citrus fruits are not readily available, has been virtually eradicated. Fully conscious of the importance of his discovery, Lind wrote in the preface to the first edition: "The subject of the following sheets is of great importance to this nation; the most powerful in her fleets, and the most flourishing in her commerce, of any in the world. Armies have been supposed to lose more of their men by sickness, than by the sword. But this observation has been much more verified in our fleets and squadrons; where the scurvy alone, during the last war [ending in 1748], proved a more destructive enemy, and cut off more valuable lives, than the united efforts of the French and Spanish arms."

WILLIAM BEAUMONT AND SILAS WEIR MITCHELL

In 1853 the American medical profession mourned the death of William Beaumont, U. S. Army surgeon, who, in addition to advancing the art of surgery in our armed forces, made a brilliant study of the processes involved in human digestion. When Beaumont was stationed at an isolated army barracks in northern Michigan, a French-Canadian courier, Alexis St. Martin, was accidentally shot through the stomach. Beaumont attended his wound with infinite care. When it healed it left a fistula that Beaumont looked on not as a mere wound but as a unique opportunity to inspect his patient's stomach mucosa by direct vision and to study the rate of digestion of individual foodstuffs through action of the gastric juices. He was also able to remove these digestive secretions and to study their action on food outside the body, a study that resulted in his celebrated monograph, "Ex-

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[1] Garrison, F. H.: Notes on the History of Military Medicine, Mil. Surgeon 50: 1, 1922.

[2] Brunner, C.: Die Verwundeten in den Kriegen der alten Eidgenossenschaft; Geschichte des Heeressanitätswesens und der Kriegschirurgie in den schweizerischen Landen bis zum Jahre 1798, Tübingen, H. Laupp, 1903.

[3] Wiseman, R.: Severall Chirurgicall Treatises, London, Flesher and Macock, 1676.

[4] Lind, J.: A Treatise of the Scurvy. In Three Parts. Containing an inquiry into the Nature, Causes, and Cure of that Disease; Together with a Critical and Chronological View of what has been published on the subject, Edinburgh, Sands, Murray & Cochran, 1753. Reprinted as Lind's Treatise on Scurvy, Stewart, C. P., and Guthrie, D., editors, Edinburgh, the University Press, 1953.

periments and Observations on the Gastric Juice, and the Physiology of Digestion,"[5] which so well exemplified Pasteur's famous dictum, "In the field of observation, chance favours only the mind which is prepared."

The United States armed forces have had many other illustrious medical officers who have done original work through opportunity to study wounded men, ours as well as those of the enemy. Many names come to mind, such as that of John Shaw Billings; but no one during the Civil War occupies the position of Silas Weir Mitchell, a physiologist by training and a neurologist through special interest. Mitchell, with W. W. Keen (who ultimately became a celebrated Philadelphia surgeon) and G. R. Morehouse, early in the Civil War (1861) had occasion to study peripheral nerve injuries and the sensory and motor disturbances that result therefrom. Perusal of the protocols of their preliminary Circular Letter issued through the Office of the Surgeon General on March 10, 1864,[6] and of the monograph that they published later in the same year,[7] makes it clear that Mitchell was the dynamic force behind the study. His analysis of the problem illustrates his powers of observation and his genius for making sound physiological deductions. Among other things, Mitchell and his colleagues discovered that in certain cases following severance of an important nerve, especially when the nerve's disruption was associated with infection, there were abnormal sensory manifestations, i. e., hyperesthesia in the extremity affected, a syndrome that Mitchell named causalgia. The problem of causalgia has been studied for nearly a hundred years in both civilian and wartime cases of nerve injury, and it came to be most actively studied during World War II, when its incidence was frequent.

In retrospect, an even more important contribution of Mitchell and his collaborators lies in the clear-cut description of "primary" and "secondary" shock. Thus, in discussing the various types of shock, one reads in the circular on reflex paralysis:[6] "The majority of physicians will no doubt be disposed to attribute the chief share in the phenomena of shock . . . to the indirect influence exerted upon and through the heart. There are, however, certain facts, which duly considered, will, we think, lead us to suppose that in many cases the phenomena in question may be due to a temporary paralysis of the whole range of nerve centres, and that among these phenomena the cardiac feebleness may play a large part, and be itself induced by the state of the regulating nerve centres of the great circulatory organs. . . . But there do exist certain cases, more rare it is true, in which singular affections of the nerve centres, other than those of the heart, occurs as a consequence of wounds."

WORLD WAR I

During World War I there were many medical advances stimulated by the war itself, particularly in the sphere of prevention of infectious disease. It is said that when the Austrians attempted to invade the Balkans the front was held not by guns but by the louse and the devastating epidemics of typhus caused by the jumping creatures. It is estimated that nearly a million Austrian soldiers poised on the Balkan border perished from epidemic typhus. The Russian armies had much the same difficulty and so did those of other countries of western Europe. Our soldiers were similarly troubled in the trenches on the western front, but through use of hygienic methods there was far less devastation.

On the basis of the experience of World War I, every effort was made in World War II to protect our troops from typhus, especially in the Mediterranean theater. Meanwhile, DDT, the most effective insecticide then known, had been introduced and was used by the Eighth Army under the direction of General Fox and General Hume to delouse the population of Naples and other points of southern Italy. This practically abolished the typhus hazard among our occupation forces and the Italian civilians.

It would be difficult to enumerate all the special branches of medicine that have benefited by war research, but there is nothing so striking as the protection afforded our troops by mass inoculation, particularly against tetanus. To quote Brig. Gen. Elliott C. Cutler, chief consultant in surgery of the European theater of operations in World War II: "I would like to speak of the miracle which has occurred in eliminating tetanus from military surgery. Let me recall some figures for you. In our Civil War, the mortality rate was from 89 to 95 per cent. Shortly before World War I, under the benefit of antitoxin which was discovered and elaborated upon by the use of animals, the mortality rate had dropped to between 40 and 80 per cent. During World War I, large statistical evidence showed a mortality rate of 20 to 58 per cent; but, in this second World War, there were only 11 cases known to have occurred amongst 10,700,000 men. Of these 11 cases, 5 had been given toxoid and 6 had not. Moreover, in these 11 cases, there are records of only four deaths, two of which occurred in individuals who had received the basic series of toxoid but no booster dose, and two in individuals who had not received even the basic series. This is, in my mind, one of the great miracles of modern medicine. The basis of the establishment of a proper toxoid rests squarely upon animal investigation, and no greater debt could be acknowledged to our friends in the animal kingdom than this advance for the good of humanity."[8]

In World War I many other lessons were learned, particularly the importance of moving casualties rapidly from the front lines, before infection had set in. The mortality incidence from battle casualties was far less than in the Civil War or the Spanish-American War, but it was still high as compared with the mortality rate from casualties in World War II.

Harvey Cushing took the lead in dealing with head wounds, and, while he worked slowly, much to the consternation of other Allied surgeons, he took the rugged view that one wound well handled served a better purpose than a dozen hastily repaired wounds, since in nearly all

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5. Beaumont, W.: Experiments and Observations on the Gastric Juice, and the Physiology of Digestion, Plattsburgh, F. P. Allen, 1833.

6. Mitchell, S. W.; Morehouse, G. R., and Keen, W. W., Jr.: Reflex Paralysis, the Result of Gunshot Wounds, Founded Chiefly upon Cases Observed in the United States General Hospital, Christian Street, Philadelphia, Circular No. 6, Surgeon-General's Office (March 10) 1864. [Reprinted, Yale Medical Library, New Haven, Conn., 1941.]

7. Mitchell, S. W.; Morehouse, G. R., and Keen, W. W., Jr.: Gunshot Wounds and Other Injuries of Nerves, Philadelphia, J. B. Lippincott and Co., 1864; see also: Fulton, J. F.: Neurology and War (VIIIth Weir Mitchell Oration), Trans. and Studies Coll. Physicians, Philadephia 8: 157, 1940.

8. Cutler, E. C.: Military Surgery—United States Army—European Theater of Operations, 1944-1945 (Hunterian Lecture), Surg., Gynec. & Obst. 82: 261 (March) 1946.

the latter cases the patients would die anyway. His paper published in the *British Journal of Surgery* in 1918 [9] is still a classic of wartime cranial surgery and has been widely quoted by Hugh Cairns, Eldridge Campbell, and others who dealt with battle casualties in World War II.

WORLD WAR II

Introduction of Antibiotics.—Between World War I and World War II there were many important contributions useful not only in time of war but for medical and civilian defense. Undoubtedly the most important were the developments in the field of the antibiotics. Much research had been done on them before 1939, but their introduction as therapeutic agents was greatly expedited by World War II. Sir Howard Florey and his resourceful team at Oxford were responsible for establishing the therapeutic potentialities of penicillin. They were the first to isolate it in pure form; they were also responsible for determining its effective dosage and for securing its large-scale commercial production. Several years ago when someone referred to penicillin as an outcome of wartime research Sir Howard protested, and his objections were well taken, for he had begun to work on the antibiotics in the early thirties; but it would have been many years before penicillin could have been made available in large quantities had it not been for the stimulus of war. The story of penicillin has been frequently told and need not be repeated here, particularly since Sir Howard and Lady Florey have recently published detailed monographs [10] in which the meaningful story of the antibiotics has been traced in detail.

Surgery has probably been more benefited by wartime research than any other branch of medicine. In World War I no surgeon would have dreamed of closing an infected wound, or even one that was potentially infected, without leaving a drain. Now, thanks to the use of chemotherapeutic agents such as the sulfonamides and penicillin, it is possible to close wounds of almost every description, even those of the abdomen, without drainage and without fear of subsequent complication from infection, provided all dead tissue has been carefully removed prior to the closure. So great at one time did confidence become in the effectiveness of the new chemotherapeutic agents that some of the younger surgeons grew careless and began closing badly contused wounds without "débridement," i. e., without careful removal of seriously damaged tissue. Such injured areas may be without circulation, and they therefore become the foci of serious infection, since the bloodstream is unable to carry antibacterial agents into such regions. Penicillin thus cannot be regarded as a substitute for good surgery but merely a highly important adjunct. These newer principles of traumatic surgery, as worked out in the war theaters, have had immediate application in all forms of civilian traumatic surgery, and they are rapidly being adopted in our surgical clinics, largely through the influence of the younger medical officers returning from active service.

A second important result of the use of penicillin and the sulfonamides has been the avoidance of unnecessary amputations and unnecessary removal of potentially viable tissue. With the greater confidence that these drugs are bringing to the surgeon he is able to operate much less radically. Formerly it was taught that all contused tissue should be removed from an injured area, but a contused muscle may still have an active circulation and therefore be capable of regaining its normal function. When the thigh muscle or the calf has been injured by a high-velocity missile, the muscle is generally contused over a large area and a surgeon of the old school would in most such instances amputate rather than risk secondary infection. During the last two years of World War II and during the Korean campaign countless extremities injured in this manner have been saved by combining penicillin therapy with conservative surgery. One of the burning arguments, however, that one still encounters in surgical amphitheaters turns on the criterion of tissue viability: how can a surgeon be certain that a contused muscle will recover its function? The old adage ran, "When in doubt, remove it"; a newer epigram might be, "If it bleeds, it can recover," and "When in doubt, leave it."

BLOOD FRACTIONATION

Surgery has also been influenced by wartime studies on human blood and the blood plasma fractions that have become available in pure form, again as a direct result of wartime medical research. At the beginning of the war, much effort was devoted to the preparation of blood fractions suitable for transfusion. Blood plasma (whole blood minus the red blood cells) was made available, but since many untoward reactions occurred from the transfusion of incompatible plasmas, and since under war conditions blood typing was often difficult or impossible, the plasma proteins were fractionated and the globulin fraction that carries the allergic potentialities of the blood was eliminated, leaving the albumins and fibrinogen. Albumin was then prepared in pure form and was thus made available for immediate transfusion without fear of complications.

It soon became obvious, and this should have been clear from our experience in World War I, that when men have sustained severe hemorrhage whole blood is needed for transfusion, not merely plasma or albumin, since many weeks are required for the body to regenerate its red blood cells. The British had attempted to collect and store whole blood in 1939, but their efforts were largely unsuccessful because of difficulties in preservation. In 1943 an effective preservative was developed by the U. S. National Research Council, and within a few months whole blood was being flown in enormous quantities to Europe as well as to all the outposts of our Pacific theater, as it is now being flown to Korea. So effective is this service that blood drawn on the west coast was delivered in refrigerated containers less than 48 hours later at points such as Leyte, and at the end of the war it was quickly reaching Seoul and other points in the Korean theater.

As a result of these investigations on blood and its fractions, the civilian surgeon has an imposing array of blood substitutes ready for his use at any time, and he is able to count on a supply of stored whole blood rather than having to find a blood donor at the scene of an accident or at some outpost of civilization. He has also come to depend on two other significant blood fractions, namely, fibrin and thrombin, which, thanks to the work of Edwin Cohn, Franc Ingraham, and others, are available in pure form and in combination can be used to stop the most stubborn hemorrhage, e. g., bleeding from the brain substance or the liver, which is notoriously difficult to arrest. A more homely use of the fibrin-thrombin combination is for stopping a nosebleed or the hemorrhage that so often follows tooth extraction.

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[9] Cushing, H.: A Study of a Series of Wounds Involving the Brain and Its Enveloping Structures, Brit. J. Surg. 5: 558 (April) 1918.

[10] Florey, H. W.: Antibiotics: a Survey of Penicillin, Streptomycin and Other Antimicrobial Substances from Fungi, Actinomycetes, Bacteria, and Plants, London, G. Cumberlege, Oxford University Press, 2 v., 1949, and Florey, M. E.: The Clinical Application of Antibiotics: Penicillin, London, Oxford University Press, 1952.

Important new branches of medicine, important to the armed forces and to civilians alike, have been created by wartime necessity. Although no word has yet been coined to cover the great new area of chemical applications in disease control, i. e., insect repellents, insecticides, and antimalarials, which are now numerous because of our attempts to make military operations possible in tropical regions, this special field presents itself as a new and discrete branch of medicine and should be so recognized. Just as Major Walter Reed and Gen. William C. Gorgas made possible the building of the Panama Canal through control of yellow fever, so the repellents (against insect and shark) and the new insecticides made possible operations in the South Pacific in World War II that otherwise would have been too costly to contemplate. Other new and significant branches that have developed are aviation and submarine medicine.

AVIATION MEDICINE

Oxygen Administration.—Progress in aviation, stimulated by developments in military aircraft, has led to many advances of outstanding value both for medical defense and for civilian aviation.[11] One of these is oxygen administration. During the First World War, few fighter planes could achieve altitudes greater than 18,000 ft., and the use of oxygen, except in unusual instances, was not deemed a prime military necessity; hence, such oxygen masks as there were were crude in design and wasteful from the point of view of oxygen supply. The need for oxygen masks was well known, however, from early balloon ascent, and particularly from the tragic Tissandier disaster, which occurred on April 15, 1875. Three men had ascended in a balloon to an altitude of 28,000 ft., and all three were overcome by altitude sickness before they could breathe the oxygen that they had on board. As a result, two of the balloonists, Crocé-Spinelli and Sivel, succumbed, and Tissandier alone of the three survived. The intrepid French experimenter, Paul Bert, established the fact in a home-made pressure chamber that it was not low pressure as such that had caused the death of the two balloonists but rather the low pressure of oxygen at 28,000 ft. Paul Bert exposed himself, along with a bird and a rat, to a pressure of 430 mm. Hg. The bird vomited and appeared quite sick, and at a slightly higher altitude the bird was close to death and the rat uneasy. At that point, Professor Bert became dizzy and his pulse had increased from 60 to 86. He then began to breathe oxygen, his dizziness disappeared, and his pulse within two minutes had dropped to 64, but it was still impossible for him to whistle. He continued his ascent to an altitude equivalent of 29,000 ft. (428 mm. Hg), at which time the bird was prostrate and a burning candle had turned very blue, with its flame almost extinguished.

This celebrated experiment made it quite clear that oxygen must be available if planes without pressure cabins were to ascend to altitudes above 18,000 ft. Further study carried out during World War II made it clear that vision, mental alertness, and the capacity to fly a plane with safety began to diminish at altitudes as low as 5,000 ft., this being particularly true of night vision. Hence, when military aircraft began to ascend to altitudes of 25,000 and 30,000 ft. and later to 40,000 and 50,000 ft.[12] the problem of oxygen supply became acute and all the problems worked out for military aircraft were immediately applicable to commercial planes carrying civilians. It has been said that the Battle of Britain was won with a few oxygen masks. In a literal sense this is perhaps true, because Hitler's military pilots, both fighters and bombers, began in the summer of 1940 to come in at altitude ceilings well above the tolerance of an ordinary flier and they had developed systems of oxygen supply that for a brief time were superior to those of British fighters. Thanks to the efforts of the Flying Personnel Research Committee and particularly to one of its members, Sir Brian Matthews, the British developed a successful oxygen mask and a system of supply that made it possible for British fighters to meet German raiders at their own altitude, and through this circumstance the Battle of Britain was won, virtually in a single day, September 15, 1940, when 186 German planes were shot down. The *Luftwaffe* quickly decided it could no longer stand this rate of attrition. The British were tireless in their efforts to improve their oxygen masks and modes of supply, and our own air forces profited immeasurably by British experience, which was made freely available to the U. S. Army and Navy Air Forces.

Pressure Cabin Aircraft.[13]—It early became obvious to some investigators, including Paul Bert, that, if the gondola of a high-altitude balloon were artificially pressurized, a balloon might ascend higher into the atmosphere without endangering life. But years passed, and it was not until 1933 that the National Geographic–U. S. Army stratosphere flight was able to make an ascent in a pressurized gondola with adequate pressure control. In this memorable ascent, Auguste Piccard achieved an altitude of 72,395 ft., the highest altitude yet attained by man.

The experience encouraged the U. S. Army Air Corps to think of pressurized combat aircraft, and to Harry G. Armstrong, now Surgeon General of the U. S. Army Air Forces, must be given credit for having, through a historic Air Corps technical report, outlined the physiological requirements of sealed high-altitude aircraft compartments. This was a starting point for developments of pressurized planes in this country, the first of which (the

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[11] Hoff, E. C., and Fulton, J. F.: A Bibliography of Aviation Medicine, Springfield, Ill., Charles C Thomas, Publisher, 1942. Hoff, P. M.; Hoff, E. C., and Fulton, J. F.: *A Bibliography of Aviation Medicine:* Supplement, Springfield, Ill., Charles C Thomas, Publisher, 1944. Fulton, J. F.; Hoff, P. M., and Perkins, H. T.: A Bibliography of Visual Literature, 1939-1944, Washington, D. C., 1945.

[12] In the *Illustrated London News* for May 16, 1953, it is reported that on May 4 a new English turbo-jet bomber (Canberra type) reached an authenticated altitude of 63,668 ft., which stands as the altitude record for heavier-than-air machines under human control.

[13] The material in this and the following section is based on: Fulton, J. F.: *Aviation Medicine in Its Preventive Aspects:* An Historical Survey (Heath Clark Lectures, 1947), London, Oxford University Press, 1948. National Research Council: Decompression *Sickness,* Caisson *Sickness,* Diver's and Flier's Bends, and Related Syndromes, Philadelphia, W. B. Saunders Company, 1951.

XC-35) was flown in April, 1937. In this development the United States was ahead of both Britain and Germany, and thanks to the enterprise of the Lockheed Aircraft Corporation finally succeeded in making their stratoliners (B-307) and Constellations effectively pressurized. After 1946 Constellations began to make regular transatlantic flights at altitudes ranging from 18,000 to 24,000 ft., while the pressure in the cabins was maintained at an average corresponding to 8,000 ft.

Technical difficulties in pressure cabin aircraft prove numerous, and for the most part they stem from man's physiological requirements, i. e., maintaining cabin pressure, and, of almost equal importance, adequate ventilation. The average air passenger, without lung or heart disease and under the age of 70, is quite comfortable at an altitude of 8,000 ft., even though at that height his night vision may be somewhat impaired. But ventilation of the fuselage presents a very real problem because of the accumulation of water vapor and carbon dioxide; also in hot weather body odors and fumes from aircraft instruments and engines demand rapid change of air at appropriate pressure. In a completely sealed cabin a change of air of 2 to 3 cubic feet per minute per person will keep the humidity and the carbon dioxide at a tolerable level, provided there are no exhaust fumes.[14] Leaks in the pressure cabin equipment are inevitable, however, and with further experience it became evident that a change of at least 12 cubic feet per minute per person would be essential for comfortable air travel. This involved installation of larger turbo-pressurizers and air coolers to make the pressurized air tolerable from a thermal standpoint. Through experience gained during World War II these difficulties have now been largely overcome, and essential equipment has now been installed in all long-range, high-flying, pressurized passenger aircraft.

Explosive Decompression.—An ever-present hazard in pressurized aircraft, both military and commercial, is that of sudden or explosive decompression. Pressurized aircraft, such as the Constellation, is stressed to withstand a pressure differential of 6.5 lb. per square inch. This would permit flight at 30,000 ft. with an internal pressure equivalent of 8,000 ft. If a large military aircraft, flying at 30,000 ft., were suddenly depressurized by enemy action, the pilot, if he had oxygen available, could carry on, but other crew and passengers without oxygen would retain useful consciousness for about two minutes. If no oxygen were available, crew and passengers would become unconscious within a matter of minutes and death might ensue within a period of 8 to 10 minutes. Hence, commercial planes, in which explosive decompression might occur as a result of the breaking of a window, failure of turbos, or explosion of an observation dome, are not permitted to fly above 22,000 to 24,000 ft., since a large plane cannot descend rapidly enough to insure consciousness of the occupants, especially of the crew.

With military planes, which ascend to much greater altitudes, the situation is even more critical. For example, if pressurized military aircraft were flying at 52,000 ft. and were suddenly decompressed, the pilot would have only 15 to 20 seconds to get himself out of the plane, and, if he did not descend within three to five minutes through free fall to 20,000 ft., his heart would have stopped. A direct pressure dive might enable the pilot to achieve 15,000-20,000 ft., but he would be unconscious when he reached that level. In view of this circumstance it has been deemed safer to bail out for a free fall with a parachute that will automatically open at 10,000 to 12,000 ft. With rockets and the much-talked-of space ship, which will fly through ether in which there is no pressure and no oxygen, the paramount importance of maintaining adequate pressure levels is obvious, and the energy required to maintain pressure, let alone jet propulsion, is so great that even the most optimistic are loath to predict that the problem of fuel supply could be solved, despite all the resources of human ingenuity, within the life-span of this generation. Perhaps one might reach the moon, but how would energy be secured to insure return? More difficult conundrums have been solved in the past, but, although I happen to be an optimist with faith in the resourcefulness of some future generation, I believe that the only possible solution lies in atomic energy with all its weighty paraphernalia. "And so it turns out that in man's quest for mastery of the air a great step forward has been taken in the successful development of pressurized cabins. These developments, however, are in their early infancy from the engineering standpoint, and their use in larger transport planes, in rockets and jet-propelled craft, will succeed only if the limitations of the human frame, both in its structure and in its functions, are kept constantly in mind. And let us not forget that it was a flight surgeon and not an engineer who wrote the specifications for the first pressurized plane." [15]

Acceleration in High-Speed Aircraft.—The successful use of oxygen presupposes a steady blood circulation without undue gravitational pressure on the heart; however, it became obvious to the French flight surgeons in 1918 that rapid turns and dive pull-outs tended to diminish the flow of blood to the brain. In the Snyder Trophy Races in 1929, confusion and dimming of vision were encountered when the pilots were rounding the pylon; and in 1932 a man of great insight, Heinrich von Diringshofen of the German Air Ministry Research Laboratories at Tempelhof in Berlin, constructed a human centrifuge to simulate problems of acceleration in flight. Before this, however, two equally thoughtful Dutch investigators, Jongbloed and Noøyons of Utrecht, had studied the effects of acceleration on the level of the systolic blood pressure in animals. As a plane's speed is augmented or diminished, the pilot is pushed backward or forward in his seat by a force directly proportional to the rate of acceleration or deceleration. If the increase of speed occurs at 32.2 ft. per second, the pilot would be pushed against the back of his seat by a force equal to that of gravity, but, when pilots pull out of dive bomb maneuvers, the direction of the acceleration is from head to foot, and, as far as the circulation is concerned, there is a tendency to pull blood from the head.

Need for protection from high acceleration in aircraft has become even more acute in the last few years owing to the development of the fast-flying jet plane and the possibility of using rockets for human transportation. Even when planes were unable to fly at rates of more than 200 to 300 miles per hour, acceleration had become a vital problem, especially in dive bombers, and in fighter aircraft that were able to make fast turns. Now that jets are achieving speeds of 500 to 700 miles per hour, the need for protection from acceleration is vastly increased. The pneumatic pressure suit developed by Capt. John Poppen, USN (MC), Prof. F. A. S. Cotton in Australia, and Dr. Harold Lamport in New Haven, Conn., and many others, has served to give measurable and strategically significant protection for military pilots. Such suits have proved of inestimable value, especially during the D-Day operations, and more recently for our fighter pilots in Korea.

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[14] Spealman, C. R.: Aviation Toxicology (An Introduction to the Subject and a Handbook of Data), New York, The Blakiston Company, 1953.

[15] Fulton,[13] p. 114.

Design for Safety—During the war there were many instances in which a fast-flying bombing plane crashed into a mountain side and everyone on the plane, except for the tail gunner, was instantly killed. Accidents such as this have stirred inquiry into the reasons for these apparently miraculous survivals. They lie in the fact that the rear gunner's head and the rest of his body were supported by solid structure at the time of the impact and in the fact that he was riding backward. Those situated in a more forward position in a crashing airplane are thrown from their seats because of insufficient strength of seat belts and seat moorings, and according to the wartime report of Whittingham, director general of medical services of the R. A. F. (and now of B. O. A. C.), 95% of the deaths in air crashes result from head injury, i. e., the head of the passenger is thrown violently against solid structure.

It became obvious, in view of episodes such as these, that rear-facing, heavily moored seats would confer a degree of passenger safety at least 10 times as great as that which could be achieved with forward-facing seats with fragile seat belts to hold the passenger in place in the event of accident. The British public and airplane manufacturers have already seen the virtue of rear-facing seats, and many of their new passenger planes are so equipped. In the United States the resistance on the part of both the flying public, and more particularly the aircraft designers, has been so great that to date only Northwest Airlines have seen fit to install rear-facing seats in commercial craft.

The principles involved in the greater safety from rear-facing seats are simple. If one falls to the ground and strikes one's head on soft earth, the head is decelerated in a matter of a few tenths to one half a second; the blow being thus softened, the accident victim may not suffer concussion or unconsciousness. When, however, a person knocked off a bicycle strikes his head on solid cement that does not yield, he may suffer fracture of the skull, concussion, hemorrhage, and possibly even death. In these circumstances the head is decelerated in a matter of a hundredth of a second or less, depending on whether the falling person has on his head a soft felt hat or a football helmet. Crash helmets to minimize sudden deceleration of the head are now in use in almost every military aircraft, since pilots, unfortunately, are unable to occupy rear-facing seats with present flight equipment.

Mr. Hugh De Haven, director of crash injury research at Cornell University Medical College in New York, is, among others, responsible for stressing these considerations. In this connection, one of his most impressive studies has been the analysis of nonfatal suicide leaps in the city of New York. Persons have survived virtually uninjured after leaps from the 10th and even the 17th floor of New York buildings, and, when the circumstances are analyzed in any given case, it turns out that the intended suicide victim has usually landed flat on his back in a soft garden plot or on a ventilating screen, or his fall may have been broken by awnings or an automobile top. This again indicates the importance of gradual rather than abrupt deceleration. These principles have proved to be immediately applicable not only in aircraft design but also in the automotive industry. A summary of these considerations has been given in Hugh De Haven's "Development of Crash-Survival Design in Personal, Executive and Agricultural Aircraft." [16]

The literature of aviation medicine, the great part of which has come from military installations, affords many other examples of material that is immediately applicable to commercial aircraft and to the automotive industry. It stresses the importance of having men of vision, imagination, determination, and sound training in the medical departments of all our military services, for the contributions they make are likely to be of importance not only to military operations but to society in the broadest sense.

SUBMARINE MEDICINE

Submarine medicine offers many examples of scientific disclosures with general application, but they are of less immediate significance to the civilian public at the present time, since it is not much given to traveling in submersibles, except for a few hardy souls such as William Beebe, who study marine life at great depths in the sea, and the "frogmen," who do mysterious things at depths of 100 or more feet in the interests of national defense. Of course, the diver and the caisson worker can always learn much from submarine experience, especially about protection from caisson disease and diver's "bends." There is no journal of submarine medicine, but the physiological problems encountered by submarine personnel are numerous and the literature pertaining thereto has been analyzed, summarized, and systematically arranged in a remarkable bibliography by Commander Ebbe C. Hoff, USNR (MC)[17] entitled "A Bibliographical Sourcebook of Compressed Air, Diving and Submarine Medicine," published by the Navy Department through the Government Printing Office in February, 1948. The bibliography contains nearly 3,000 entries, each of which is summarized and reviewed in subject groups. It does not fall within the scope of this paper to discuss the technical phases of submarine medicine but attention should be directed to K. E. Schaefer's comprehensive monograph (826 pp.) on German submarine medicine.[18] Dr. Schaefer, chief of the Submarine Physiological Laboratory at Heidelberg during the war, is now continuing his important studies in the physiology branch of the U. S. Naval Medical Research Laboratories at New London, Conn. His recent reports from the submarine base should also be consulted.

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[16] De Haven, H.: Development of Crash-Survival Design in Personal, Executive and Agricultural Aircraft, Crash Injury Research, Cornell University Medical College, New York (May) 1953.

[17] Hoff, E. C.: Bibliographical Sourcebook of Compressed Air, Diving and Submarine Medicine, Navy Department, United States Government Printing Office (Feb.) 1948.

[18] Schaefer, K. E.: Symposium on Submarine Medicine, U. S. Fleet Naval Forces, Germany, Technical Section (Medical), 1950.

In closing this historical survey on the importance of military medicine to national and civilian defense I can do no better than to quote the words of Capt. J. S. Taylor, USA (MC), written after World War I: [19] "The world is far from even apprehending what it has yet to learn thoroughly, that in the field the distribution of medical supplies, prompt évacuation, skillful first aid, shelter, food, and restoratives available early for every fallen combatant are of infinitely more importance than highly technical relief to difficult cases. More critical still are the problems relating to later demobilization, to hospitalization and rehabilitation of war victims, and the faithful but well-ordered and economical relief of the wreckage of war. Millions will be spent and more millions wasted until the time comes when it is a recognized part of the program of national defense to organize methods of post bellum relief at the same time that activities are initiated for the prosecution of hostilities. We have progressed from the day of medical attendance for leaders to medical attendance for all combatants, and leaders are increasingly alive to the immediate necessary needs of their forces; but we have not yet attained to a comprehensive grasp of the requirements or possibilities of military medicine."

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[19] Taylor, J. S.: A Retrospect of Naval and Military Medicine, U. S. Nav. M. Bull. 15 (no. 3): 561, 1921, p. 608.

RADIATION PROTECTION COMES OF AGE

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There is now a large body of information regarding the hazards to human beings from ionizing radiations derived from x-ray sources, radioactive substances, particle accelerators, and nuclear fission.[1] There is also a wide appreciation of the need for intelligently applied protective measures, and for special training of those to whom the responsibility for protection is delegated. The fact that ionizing radiations produced reactions in living tissues was appreciated within a very short time after the discovery of x-rays and radium, but knowledge of the extent of the hazards and the degree of protection required was slowly accumulated over the first 35 years of this century. Knowledge depended on the evolution of the physics of radiation and the development of precise and sensitive instruments for measurement as well as the long latent period involved in biological responses to radiation.

By 1935 a new era in radiation protection became possible. The international acceptance of the roentgen as the unit of ionizing radiation made it possible to specify the amounts of radiation that were permissible. Instruments with stable and reproducible ionization response made it possible to measure the amounts received. The accumulation of radiobiological data furnished enough information to specify reasonable maximum permissible exposure levels. All three of these considerations have been subjected to even more intensive study in the recent past and furnish logical support for answers to the classic questions: 1. What is hazardous radiation, requiring protective measures? 2. Who should be protected? 3. How can protection best be achieved?

There is need for the application of some common sense in defining what constitutes hazardous radiation. A good deal of ungrounded fear has been generated in concern over the potential dangers associated with the development of atomic energy and the increasing medical uses of radiation. It seems reasonable to state that the hazards from these sources have been far less than the benefits derived in the form of increased awareness of the problem. The few accidents that have occurred in work with atomic energy have been limited to quite restricted situations in which the dangers were fully realized and the risk of these was unavoidable in accomplishing definite goals.

In medical use, standards of good protection practice have constantly improved and the majority of untoward exposures have been associated with risks purposefully encountered in the need for diagnosis of or treatment of disease by radiation methods. There is room for improvement, however, and so much of the responsibility for bringing about good practice of radiation protection depends on the medical profession that particular attention to universal acceptance of high standards is indicated. The increasing industrial use of radiation has also generally been accompanied by awareness of the protection problems and by good safety records.

The exposure of human beings to any unnecessary radiation is not to be encouraged; when no benefit can be expected, some exposures can be categorically forbidden. A situation of this type exists in the use of x-ray fluoroscopes for shoe-fitting, inasmuch as competent orthopedic authorities state that no benefit is to be achieved by their use in fitting shoes. Yet, one must be aware of the daily exposure of all human beings to measurable levels of ionizing radiations in the form of cosmic radiation and the emissions of natural radioactive substances, such as potassium 40, carbon 14, and radon, which are natural constituents of our environment, our food, and our bodies. We are also exposed to minute

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Drs. Eugene P. Pendergrass, L. S. Taylor, and G. Failla assisted in the preparation of this paper.

[1] Stone, Robert S.: The Concept of a Maximum Permissible Exposure: Carmen Lecture, Radiology **58**: 639-661 (May) 1952. Taylor, L. S.: The Philosophy of the Development of Radiation Protection, personal communication to the author. Evans, R. D.: Quantitative Inferences Concerning the Genetic Effects of Radiation on Human Beings, Science **109**: 299-304 (March 25) 1949. Henshaw, P. S., and Hawkins, J. W.: Incidence of Leukemia in Physicians, J. Nat. Cancer Inst. **4**: 339-346 (Feb.) 1944. Paterson, R.: Symposium: Protection Against Radiations in Medical and Industrial Practice: Effects of Radiation on Workers, Brit. J. Radiol. **16**: 3-5 (Jan.) 1943. Zirkle, R. E.: Biological Effects of External Beta Radiation, National Nuclear Energy Series, Manhattan Project Technical Section, Division IV, Plutonium Project Record, New York, McGraw-Hill Book Company, Inc., 1951, vol. 22E. Ritter, V. W.; Warren, S. R. Jr., and Pendergrass, E. P.: Roentgen Doses During Diagnostic Procedures, Radiology **59**: 238-251 (Aug.) 1952. Recommendations of the International Commission on Radiological Protection and of the International Commission on Radiological Units, 1950, handbook 47, United States Department of Commerce, National Bureau of Standards, June 29, 1951; Maximum Permissible Amounts of Radioisotopes in the Human Body and Maximum Permissible Concentrations in Air and Water, handbook 52, March 20, 1953; Safe Handling of Radioactive Isotopes, handbook 42, Sept., 1949; Control and Removal of Radioactive Contamination in Laboratories, handbook 48, Dec. 15, 1951; Medical X-Ray Protection up to 2 Million Volts, handbook 41, March, 1949; Recommendations for Waste Disposal of Phosphorous-32 and Iodine-131 for Medical Users, handbook 49, Nov. 2, 1951. Wyckoff, H. O., and Taylor, L. S.: X-Ray Protection Design, handbook 50, United States Department of Commerce, National Bureau of Standards, May 9, 1952. Radiological Monitoring Methods and Instruments, handbook 51, United States Department of Commerce, National Bureau of Standards, April 7, 1952.

amounts of radiation from luminous dial watches and clocks and certain types of eyeglass lenses, and still smaller amounts from other appurtenances of modern civilization such as projection television apparatus and the cumulative effects of the release of atomic energy.

WHAT CONSTITUTES A RADIATION HAZARD

The problem, then, of what constitutes a radiation hazard, is one of degree and quantity. By international agreement, the maximum permissible exposure, to the whole body or gonads, has been set at 0.3 r per week measured in free air (0.5 r on the body surface) or, in the the case of the hands and forearms, at 1.5 r per week. Both of these refer to externally originating x-rays or gamma rays of quantum energy less than 3.0 mev. Appropriate physical and biological equivalents are used for other forms of ionizing radiations. These recommendations are made for use in unavoidable exposure for adequate reasons and do not imply either that they limit the use of higher levels for good and sufficient cause, as for medical diagnosis or treatment, or that the least possible exposure should fail to be the goal at all times. They presume that the exposures may be repeated in regular occupation. The recommendations are based on the pooled opinions of experts forming the National Committee on Radiation Protection and the International Commission on Radiation Protection and embody the best knowledge currently available of skin, whole body, gonad, and blood responses of human beings and experimental animals as well as special consideration of the relationship of radiation to gene mutations and to the production of carcinoma and leukemia.

In making use of these recommendations, it is still necessary to apply interpretation of the degree of need for a particular radiation exposure as well as considerable skill in the measurement of the physical factors that will deliver it. This requires understanding by informed personnel, applied with common sense, and, as we shall discuss later, usually the decision must be made by the actual user of the radiation.

WHO SHOULD BE PROTECTED

The question as to who should be protected would seem to be an easy one, but the answer is influenced by the foregoing examination of the useful purpose gained by the exposure. At one extreme might be placed the medical patient with malignant disease in which cure or at least palliation of the disease might be expected. In this instance, normal considerations of protection must be foregone. While it is still desirable to give as little radiation as possible, the treatment may be carried to the point just short of where the acute effects of the radiation are as dangerous to the patient's life as the malignant disease. This is in the order of 1,000 times the general level of exposure expressed in the maximum permissible exposure recommendations. Strict comparisons with maximum permissible exposure values cannot be made because of the time factors and repetition involved, but are used here to indicate the quantities in general terms. In roentgen diagnosis, the judgment as to how much radiation may be employed is best individualized in each instance, but it never should reach the dosages used for malignant disease. Even for exceptional situations diagnostic uses do not usually exceed 10 to 50 times the weekly maximum permissible exposure and are not repeated without adequate indication.

At the other extreme one should consider the "innocent bystander" and the public at large. For no better reason than that nothing useful is derived from their exposure to radiation, this is the group that should receive the least. Yet, the natural radiation sources combine to produce exposures of a probable maximum of 0.015 r per week, or about 1/20 of the maximum permissible level. The only known potential hazard of doubling or tripling this unavoidable radiation is the genetic one, for which precise information is not currently available, but it merits attention in any measure that might appreciably raise the natural exposure of the general population. The potential genetic dangers should also be considered in all uses of radiation, and special shielding or other protection is desirable wherever it can be employed.

It is the group that fits into neither of the previous categories that is most difficult to define, and, to my best knowledge, no satisfactory statement of what constitutes a "radiation worker" has been offered. In actual practice, most persons who are employed in the vicinity of radiation sources and have something to do with them receive about 0.03 r per week, which seems to be a reasonable and not excessive increase over the natural background. Certainly, every effort should be made to keep radiation exposures to levels of this order. If, however, one has adequate knowledge of the dangers, cannot reasonably avoid them, and is doing so for a meritorious purpose, judgment may allow the overriding of standard recommendations. In almost every instance of this type, however, it will be found that exposures can be brought to within the recommended amounts by the use of better technical procedures, and the greater one's knowledge of the hazards becomes, the more effort will be expended in achieving such improvements. Similar situations may be encountered in atomic warfare and the military use of atomic energy. Nevertheless this should not lessen the force of the standard recommendations.

HOW TO PROVIDE RADIATION PROTECTION

In establishing how to provide radiation protection, the data that have been collected and disseminated are brought into good practical application. This has been carried to a high degree of usefulness in medical radiology, industry, and atomic energy facilities by cooperation and individual initiative. As with all safety measures, new methods are constantly being introduced, and some procedures always need revising to bring them up to the best standards. The effectiveness of protection in the United States is due to three factors: (1) information, basic and applied; (2) education and professional standards; and (3) methods of good practice.

Basic and Applied Information.—Information has been accumulated and tirelessly disseminated in recent years by the National Committee on Radiation Protection, articles in pertinent professional and technical publications, and the Atomic Energy Commission. Detailed descriptions of the hazards involved in the complete spectrum of radiation sources, applied data for special uses, and methods for use, protection from, and disposal of radioactive materials can usually be found in the handbooks published through the Bureau of Standards and the United States Government Printing Office for the National Committee on Radiation Protection. This committee, and its subcommittees for each handbook, have been composed of the best available experts from medical, industrial, physical, and governmental sources for each topic. They have elaborated on the recommendations of the International Commission on Radiation Protection and cooperated with it. These handbooks constitute a satisfactory code of good opinion and usage and have been used not only by private and industrial workers but also by the Atomic Energy Commission and other governmental agencies. Problems not covered in these publications are usually highly specialized and can be derived from them or found in publications from other sources.

Education and Professional Standards.—As with other advanced technical activities that require intelligent judgment, education and professional standards offer the only valid method of ensuring good practice. The interpretation of the general rules or pattern of protection in the individual case cannot be achieved through legislation or the issuing of licenses. In general, competency depends on the education and experience of the user. In medicine, exceptional qualifications in these respects are attained by the radiologists in their training in radiation physics and radiobiology and by the group of radiological physicists that collaborates with them. Both of these are eligible for certification by the American Board of Radiology on attainment of proficiency and adequate background in these respects. Other physicians who need to use radiation in certain fields can and should receive training in the special problems of radiation protection. To omit this important training for even the use of chest fluoroscopes or occasional radiography is the equivalent of omitting the basic training in any of the medical fields in preparation for the use of life-giving but potentially dangerous agents. The trend in medicine is toward the centering of the management of radiation-producing materials in the hands of certified radiologists, or at least to the supervision of the protective aspects by such specialists and their co-workers in radiological physics. Obviously others who demonstrate sufficient knowledge and experience should also be permitted to work with radioactive materials.

For use in man of radioactive isotopes produced by or obtained through the Atomic Energy Commission, a special form of control has been derived from the provisions of the Atomic Energy Act. This legislation requires the Atomic Energy Commission to ensure that proper safety and health precautions are employed as a requisite to obtaining of radioactive isotopes from the commission. Recognizing the difficulty of decisions for both medical and other uses, the Atomic Energy Commission has used committees of specialist consultants in helping with the evaluation of applications from the standpoint of health and safety. In practice, it has evolved that the initial judgment can be based on education and experience, the reasonableness of the use and dosages proposed, and the adequacy of physics consultation and instrumentation. Nevertheless, the final execution of adequate protection depends on the local situation and, because of this, the further requirement of a local isotope committee composed of a suitable group of experts has been made, except for special situations where the use of the radioactive material has become well standardized and for applicants with previously demonstrated and well-proved experience. In major educational institutions with local committees of exceptional experience, and when the volume of uses of radioactive materials has been rather large, the determination of procedure for individual uses has been shifted to the local committee with the issuance of "general authorizations."

This pattern of committee approvals of the uses of radiation materials and sources has also been the basis for recent actions by the American Medical Association and the American Hospital Association in setting up methods for control of radiation protection in approved hospitals. In the employment of a special hospital committee that can investigate locally the adequacy of an installation and the qualifications of the user, the best practical method is likely to be obtained. The committee should consist of at least a radiologist, preferably a radiological physicist, and advantageously a hematologist or interested internist. For radioactive isotopes a biochemist or pharmacologist can contribute to the understanding of the safety factors.

In the Atomic Energy Commission and in industry, as well as in medicine and university centers, there has developed a group of safety and health consultants who do not have the medical experience of certified radiological physicists but whose primary concern has been the supervision of adequate radiation protection. Many of these workers are quite competent to control the physical aspects of the problem, particularly if they are working with committees as outlined above. A registry of such qualified consultants is currently being formed.

Methods of Good Practice.—The methods of good practice depend on the needs in the particular situation in which radiation is being used, be it for research, medical diagnosis or treatment, industry, Atomic Energy Commission, or military application. The general plan in setting up a program for radiation protection will probably follow along these lines: (*a*) formation of a well-informed and well-trained group or acquisition of the same information and training by an individual; (*b*) establishment of a well-designed and properly protected installation with good equipment; (*c*) initial inspection and testing of the safety of the apparatus and radiation sources; (*d*) appraisal of the indications and levels for radiation exposure of all persons, including "workers," patient, and the general public; and (*e*) establishment of a regular system of monitoring with safety and health consultations with competent physicists.

SUMMARY

With the increasing use of ionizing radiations, adequate knowledge of the nature of the hazards has been gained. Within reasonable limits, we now understand what constitutes hazardous radiation for which protection is required and have the instruments and units with which to measure it. Who should be protected and the degree of protection required depends on individual circumstances, but the least radiation that can be given is always the best. How to achieve adequate protection is best determined according to the education and experience of the user in consultation with suitable consultants and advisers. Local committee control with a good program of safety measures tailored to the particular situation seems to offer the best solution to maintaining good radiation protection in practice.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

REPORT OF THE COUNCIL

The Council has authorized publication of the following article.

RALPH E. DE FOREST, M.D., *Secretary.*

The Transistor Hearing Aid

A recent development in the electronic field is the transistor, a substitute for the vacuum tube. One application of the transistor is in the hearing aid. The Council on Physical Medicine and Rehabilitation anticipates that many transistor hearing aids will appear on the market; therefore a general statement on their merits and shortcomings is in order. Research on the transistor was carried out at the Bell Telephone Laboratories, and now several manufacturers are licensed to develop and produce transistors. Not all of the deficiencies associated with mass production of a new product have been overcome. Research is continuing.

There are three kinds of transistors: the junction, the alloy-diffusion junction, and the point-contact types. A typical form of junction transistor is a small rectangular block measuring 12 by 7 by 5 mm. Its longest dimension is actually no more than one-half inch, so that it is smaller than the miniature vacuum tube used in the conventional hearing aid. Three wires project from one end of the block. The middle wire is the *base* wire; it connects with a "positive germanium" area inside the block. This area is between two "negative germanium" areas. One of these two areas connects with the so-called *collector* wire, the other with the *emitter* wire.

Germanium is element 32 in the periodic table and is classified as a semiconductor. Its electric properties are strongly affected by impurities, so that germanium with small amounts of antimony or arsenic is called positive germanium, while germanium with small amounts of aluminum or gallium is called negative germanium. Elaborate theories explain the occurrences in the transistor, but the fact of practical importance is that, if a variable current is passed between emitter and base wires, corresponding variations are imposed on any current that may be passing between emitter and collector wires. In other words, the base current influences the collector current, and the effect is one of considerable amplification.

The junction transistor just described is also called the "n-p-n transistor," because the positive germanium is located between the negative germanium areas. Another kind is the point-contact transistor, which is not used in modern hearing aids.

The alloy-diffusion type of transistor is becoming more and more popular. It is a form of junction transistor and consists of a tiny pellet of negative germanium on one side of which is diffused a positive bead of indium (or gallium), with a similar bead of indium on the opposite side. The base wire is connected to the germanium. The emitter wire is connected to one bead of indium and the collector wire to the other. The germanium and indium, occupying a volume no more than 1 cu. mm., are sealed in plastic. The complete transistor, which has three wires extending from it, is no larger than a miniature vacuum tube.

The most important advantage of the transistor hearing aid is its economy of operation. The all-transistor hearing aid needs only one battery. The all-vacuum-tube hearing aid requires a B-battery and an A-battery. The A-battery heats the filament for electron emission, and the B-battery establishes the positive pole for the plate and is a source of power for acoustical amplification. The transistor has no filament, hence only one battery is required. Fortunately, this battery can be a 1.5 volt carbon-zinc dry cell or a small 1.2 volt mercury battery. In the vacuum tube, heating of the filament requires the most power. Since the transistor does not require heater current, obviously a large saving can be realized.

It is not known at present whether some of the shortcomings of the vacuum tube hearing aid will be eliminated by the use of transistors. It is conceivable that the noises resulting from thermal emission and from the movements of the filament, plates, and grids in the vacuum tube that are caused by mechanical shock can be minimized. On the other hand, additional background noises in the transistor may take their place.

At the present time, it appears that no significant change has been made in the size of the transistor hearing aids over the vacuum tube hearing aids. One would assume that with the elimination of a B-battery, the over-all size would be smaller; but this battery space is filled with other components of the transistor circuit that are needed for its operation. In time the transistor hearing aids may be lighter and smaller, but there is no significant change in the outward appearance at this time.

Since the hearing aid is a new application for the transistor, it is reasonable to expect that many deficiencies and shortcomings in performance will be encountered. The new components necessary to couple the transistors within the circuit may cause some trouble, but it is more than likely that the major failures will be in the transistor itself. The transistor is new, and not all of the imperfections have been eliminated. The hearing aid may appear to "sleep," that is, to act as though it had an open circuit or the battery were dead or as if it were not functioning at its original efficiency. In order to cover these insufficiencies, the purchaser should insist on a guarantee that the instrument will be maintained in top condition for at least one year and that all defective transistors will be replaced without cost.

There are three general types of transistor hearing aids known at this time. 1. The all-transistor type uses a crystal microphone, three transistors, a magnetic type earphone, and one low voltage battery with the necessary circuits. 2. The combination type consists of a crystal microphone, two vacuum tubes, one transistor, which takes the place of the power vacuum tube amplifier, a magnetic type earphone, and an A-battery and a B-battery with the necessary circuits. 3. The single transistor type consists of a carbon-granular microphone (a telephone type of transmitter), one transistor, a magnetic type earphone, and a low voltage battery plus the necessary circuits. This instrument obtains its amplification in part from the transistor and in part from the carbon-granular microphone, which in itself is an amplifier.

The most important advantage of the transistor hearing aid that can be claimed at the present time is a significant reduction in operational cost, as much as 80% and perhaps more. At present it seems that the size and weight of the hearing aid will not be changed appreciably. There does not seem to be any significant improvement in amplification, in tone quality, or in fidelity of the transistor hearing aid over other kinds. The purchaser should insist on a written guarantee to cover possible mechanical and electrical defects in the instrument.

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THE WORLD MEDICAL ASSOCIATION AND MEDICAL EDUCATION

Under the auspices of the World Medical Association there was held recently in London a conference on medical education. This was unique because it was the first world conference on this subject. Collaborating with the World Medical Association were the World Health Organization, the Council for International Organizations of the Medical Sciences, and the International Association of Universities.

The first World Conference on Medical Education was a notable event for the World Medical Association and for medical education. For the World Medical Association it demonstrated the capacity of this organization to organize a major international conference that was hailed by all who attended it as being outstanding for its broad and fundamental approach to the subject under discussion and for the quality of the papers and discussions presented.

For medical education, the conference made it clear that medical schools throughout all parts of the civilized world have the same fundamental problems. Basic concerns of medical educators from Asia, Europe, the United Kingdom, Latin America, Australia, and North America were almost indistinguishable. All recognized the difficulty of accommodating in an already overcrowded curriculum the rapidly growing body of fundamental medical knowledge. Apparently in every part of the world students are being forced by the pressures of the amount of material to be covered to too early specialization in their studies to the neglect of the humanities, the social sciences, and indeed to the broader aspects of medicine itself.

The desire for more effective integration of the various subjects taught in medical school appears to be the monopoly of no country. Also, the conference brought out the fact that there is universal recognition of the need for more stress on preventive and social medicine in the education of physicians.

No dissent was heard from any quarter to the description of the type of person who makes the ideal medical student as so delineated by Sir Lionel Whitby, president of the conference. There was general concern, however, that medical schools may forget that the medical student is a human being with most of the frailties and limitations of his species. The difficulty of selecting the most promising students from among the large number of applicants who seek to study medicine is apparently a world-wide problem. No country claimed that it has found a satisfactory answer to the problem, although experience and experiments with many different methods of selection were reported.

In keeping with the spirit of the conference, no resolutions were passed, and no programs were formulated or adopted. The conference adhered strictly to the concept that it was to provide an opportunity for free exchange and discussion of ideas and experiences. Those who attended the conference agreed that its most important effect would be to strengthen the faith of medical educators in the basic ideals of medical education and that the spirited discussion of these ideals and of the best ways of achieving them would furnish motive power for further advances in medical education in all countries represented at the conference.

The most convincing evidence of the success of the meeting was the spontaneous expression by those in attendance of the hope that another conference of the same type would be held again as soon as practicable so that the momentum of international exchange and discussion so well initiated by this conference would not be lost.

The British Medical Association acted as the host organization, and other groups served as benefactors by providing contributions to help meet the expenses for this conference. Included are firms the names of which are very familiar to American physicians, e. g., Abbott Laboratories, American Home Products, Burroughs Wellcome, Ciba, Parke Davis, Pfizer, Sharp & Dohme, R. P. Sherer, Gelatin Products, and Wyeth. Other organizations, from the United Kingdom and the European continent, indicated their desire to support the conference. Among the foundations providing money were Pfeiffer Research Foundation, Lasdon Foundation, National Foundation for Infantile Paralysis, and the Wellcome Foundation. The United States Public Health Service also contributed generously.

Other names could also be mentioned for their relation in the program and its organization, but they would only emphasize further one point—the broad interest shown in the conference. It is not easy to arrange such a gathering of talent from throughout the world and to provide facilities for meeting plans, but it was done splendidly, and everyone who had some part in making the conference possible can be pleased with the results of their efforts and the appreciation held by all visitors.

The setting for the meeting was aptly expressed by Sir Lionel Whitby. He wrote: "Many of us are convinced that the dominant problem facing the medical profession in the second half of the twentieth century is, the problem of medical education. In an age of ever-increasing scientific advance and ever-increasing specialisation of knowledge, how can we best teach the young men and women who will be our successors as the doctors of the future? What are to be the subjects? What are the principles that should guide us?

"It is the purpose of this conference not to give any final answer to these fundamental questions, but to explore the situation as we find it in this year 1953. The object of the conference is to provide an opportunity for the interchange of thoughts and experience by the doctors of many lands so that we can shape the future development of undergraduate medical education."

This challenge was accepted enthusiastically by men and women interested in medical education in many countries. Those who gave papers and led discussions represented countries too numerous to mention. Participation by the several hundred visitors was made pleasant and productive through the use of the three official languages of the World Medical Association, Spanish, French, and English. Of no small interest were the social events and technical exhibits.

Some of the papers offered at the conference and a summary of the proceedings appear in the August 29, September 5, and September 12 issues of the *British Medical Journal*. All of the papers and much of the discussion will be published in the future by the Oxford University Press under the general editorship of Dr. Hugh Clegg, who is the editor of the *British Medical Journal*. Orders for the proceedings were taken at the conference but may also be sent to the publisher and to the office of the editor.

The first world conference on medical education reflects unequivocally the farsighted objectives of the World Medical Association. Unlike the World Health Organization, which represents the governments of the member countries, the World Medical Association represents the voluntary medical organizations in more than 40 countries. Its influence already has been felt in several quarters, and as it continues to grow it will be even more effective as a voice for doctors as a whole throughout the world. Those who have watched this organization from its beginning have seen it develop within less than a decade into a watchful, fact-finding, and, when necessary, hard-hitting body. Twice a year the council of the World Medical Association meets to consider many problems, and once a year there is a general assembly where representatives from member countries can act on these problems. Each year the assembly meets in a different city. In 1952 it met in Athens, in 1953 in The Hague. In 1954 the assembly will convene in Rome. Between now and then physicians and their friends can make plans for the conference in this fascinating city with its background of cultural interests. Details will appear in later issues of THE JOURNAL, but they can also be obtained from the office of the Secretary-General, Dr. Louis H. Bauer, 345 East 46th Street, New York, N. Y.

BEHAVIOR CHANGES IN CHILDREN SUBJECTED TO TONSILLECTOMY

During a period of three years Jackson and her associates [1] observed a group of 140 children aged 3 to 8 years before and after they were subjected to tonsillectomy in an effort to learn whether and under what circumstances this surgical experience was associated with behavior changes that indicated emotional trauma. They devised a method of study that consisted of conferences between a psychiatric social worker and the mother and child, at which time certain facts about the child's behavior and emotional status were determined. The interviews took place before tonsillectomy, in the period immediately after the surgical procedure, and after a lapse of three months. The information obtained during the various interviews was then studied by a committee consisting of three pediatricians, the social worker who conducted the interview, and the anesthetist in attendance at the operation. In addition, two psychoanalysts, a psychologist, and a public health pediatrician served as consultants to the committee. The children were operated on by one of three otolaryngologists at one of three hospitals. About half the children were anesthetized by a person who possessed both special knowledge and experience in emotional problems as well as extensive skill and training in the field of anesthesia.

In more than 50% of the children behavior either improved or showed no change, while in 30% of the group there was improvement in some traits and disturbance in others. In most instances mothers considered the behavior of the children to have improved after the tonsillectomy procedure, although in a few cases some of the behavior disturbances appeared to outweigh the general trend toward improvement. Of the entire group of 140 children, behavior changes indicative of emotional trauma occurred in 13. In general, it was revealed that children who were treated considerately as patients and those who had not been exposed to previous episodes of emotional trauma showed less evidence of emotional trauma after tonsillectomy. The youngest children in the group manifested more, albeit milder, adverse alterations in behavior. Interestingly enough, 91% of the entire group of 140 children were either benefited or scarcely affected by the tonsillectomy procedure. In general, this study suggests that considerate and compassionate management of young children who are subjected to tonsillectomy will restrict behavior changes attributable to the surgical experience to a minimum.

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[1] Jackson, K., and others: Behavior Changes Indicating Emotional Trauma in Tonsillectomized Children. Pediatrics 12:23 (July) 1953.

ORGANIZATION SECTION

ST. LOUIS CLINICAL MEETING, DEC. 1-4

Final details for the Clinical Meeting in St. Louis are almost completed. The program of clinical presentations will be outstanding, with lectures by prominent physicians from all parts of the country. The Scientific Exhibit will be correlated as far as possible with the clinical presentations. There will be several special features in addition, however, which will attract much attention.

Diabetes

The subject of diabetes will be presented under the auspices of the Joslin Clinic, New England Deaconess Hospital, Boston, and the St. Louis Diabetic Association. The chairman is Howard F. Root, M.D., Boston. A large exhibit will present data regarding the prolongation of life derived from the follow-up of many thousands of cases, with the causes of death in 12,000 cases. Prevention and treatment of toxemia in pregnant diabetics will be shown, together with the classification of pregnant diabetics for decision as to hormonal therapy, with the mode and date of delivery. Other factors include the treatment of coma and the prevention of degenerative sequelae in eyes, arteries, and kidneys.

Associated with the exhibit in an adjoining room will be a question and answer conference on diabetes daily from 10:00 a. m. to 1:00 p. m. beginning Tuesday morning and ending Friday at 12:00 noon. Twenty-minute discussion periods with questions and answers will be conducted according to a prearranged schedule, covering all phases of the diabetes problem. Among the discussants will be Howard F. Root, M.D., Boston; Robert McElvain, M.D., St. Louis; John L. Kennedy, M.D., St. Louis; George Mahe, M.D., St. Louis; Priscilla White, M.D., Boston; William H. Olmsted, M.D., St. Louis; Joseph C. Edwards, M.D., St. Louis; Sallie Wood, St. Louis; Henry E. Oppenheimer, M.D., St. Louis, and E. Paul Sheridan, M.D., Denver. Many patients will be presented to illustrate various points emphasized by the speakers.

Prevention of Traffic Accidents

An exhibit symposium on the prevention of traffic accidents will combine the experiences of the police, the Safety Council, and the medical profession. The following topics are on the program. Attendants will be present continuously throughout the week to demonstrate and answer questions:

Human Ingredient in Traffic Accidents.
  JACOB KULOWSKI, M.D., St. Joseph, Mo.
Testing the Drinking Driver.
  HERMAN A. HEISE, M.D., Milwaukee, Committee on Tests for Intoxication, National Safety Council, and Committee on Medicolegal Problems, American Medical Association.
Traffic Accidents Can Be Prevented.
  HUGH H. WAGGONER, Missouri State Highway Patrol, Jefferson City, Mo.
Safety Educational Program.
  DAVID M. BALDWIN, National Safety Council, Chicago.
Crash Injury Research.
  INDIANA STATE MEDICAL ASSOCIATION AND INDIANA STATE POLICE, Indianapolis.
The Physician's Responsibility in the Prevention of Traffic Accidents.
  CAREY N. MOON, M.D., FLETCHER D. WOODWARD, M.D., and EDWARD L. COREY, M.D., University of Virginia School of Medicine, Charlottesville.

Problems of Delivery

Manikin demonstrations on problems of delivery will be presented by an outstanding group of obstetricians in a room adjoining the Scientific Exhibit. Demonstrations will be conducted on Tuesday and Wednesday at 10:00 a. m., 12:00 noon, 2:30 p. m.; on Thursday at 12:00 noon, 2:30 p. m., and 4:30 p. m., and on Friday at 10:00 a. m. Richard Paddock, M.D., St. Louis, is the chairman.

Fractures

The fracture exhibit, which has long been a feature of the Scientific Exhibit, will cover fractures resulting from a fall on the outstretched hand, fractures of the lower end of the radius, and fractures of the ankle. The committee in charge will be Gordon M. Morrison, M.D., Boston, chairman; Ralph G. Carothers, M.D., Cincinnati, and Herbert Virgin Jr., M.D., Miami, Fla. They will be assisted by a large group of surgeons experienced in the treatment of fractures.

"MARCH OF MEDICINE" SERIES

Research and treatment of heart disease will be the subject of the first program of "The March of Medicine" television series being launched Oct. 8 over the National Broadcasting Company TV network. Over 70 stations in the United States and Canada will carry the progress report on study of coronary artery disease and hypertensive heart disease. The telecast will originate in Boston, Thursday, Oct. 8, at 10 p. m. (EST). Television audiences will find local time and channel in newspaper advertisements in cities carrying the programs. The medical profession has been informed of the TV series through announcements mailed by Smith, Kline & French Laboratories, the sponsor and producer.

The three-program series, produced in cooperation with the American Medical Association, is designed to give the public better insight into some of the nation's major health problems. Actual live presentations will be telecast from some of the leading medical centers in order to create greater public awareness of the extensive research being carried out by the medical profession.

The second in the fall series, on Nov. 5, will feature the tremendous effort and study being undertaken in the fight against cancer. Highlights of medical progress as reported at the A. M. A. Clinical Meeting in St. Louis will be televised in the third program Dec. 3. Cooperating in the Oct. 8 telecast will be members of the staffs of several hospitals in the Boston area, associated with Harvard Medical School, Boston University School of Medicine, and Tufts College Medical School. Among physicians appearing will be Herrman L. Blumgart, M.D., professor of medicine, Harvard Medical School; Howard B. Sprague, M.D., clinical associate in medicine, Harvard Medical School; Paul D. White, M.D., consultant, Massachusetts General Hospital; and Robert M. Wilkins, M.D., associate professor of medicine, Boston University School of Medicine.

REPORT ON GRIEVANCE COMMITTEES

Just off the presses is a detailed report on county medical society grievance committees. Prepared by the A. M. A.'s Council on Medical Service, this study deals with the organization, functions and operations of 198 mediation committees throughout the country. To make the data of more practical value, the societies have been divided into groups according to size. Copies are available from the Council (see page 510).

PR CONFERENCE IN ST. LOUIS

The A. M. A.'s sixth annual National Medical Public Relations Conference will be held Monday, Nov. 30.—the day before the opening of the Clinical Session—at the Jefferson Hotel, St. Louis. The Conference program will be geared primarily for physicians. Members of the House of Delegates, officers of state and county medical societies, officers of the Association and executive secretaries and PR personnel are cordially invited.

MEDICAL NEWS

CALIFORNIA

City of Hope Plans Expansion.—At its recent anniversary convention at the Ambassador Hotel, Los Angeles, the City of Hope (formerly the Los Angeles Sanatorium in Duarte) adopted a budget of $6,800,000 to carry on for the next two years. This budget, an increase of 2 million dollars over the 1951-1953 period, will permit the medical center, a nonprofit organization for the treatment of tuberculosis and cancer, to broaden its research and training program and will establish the groundwork for the creation of a new medical college at the City of Hope.

CONNECTICUT

Hospital News.—Dr. H. Edward MacMahon, professor of pathology, Tufts College Medical School, Boston, will give an address entitled "Liver Changes in Biliary Xanthomatosis" at Hartford Hospital, Oct. 10, 11 a. m.

General Practitioners Meet in Hartford.—The annual scientific assembly of the Connecticut chapter, American Academy of General Practice, will convene at the Hotel Bond, Hartford, Oct. 8, under the presidency of Dr. Edwin R. Connors, Bridgeport. The following program will be presented:

Peptic Ulcer, Samuel F. Marshall, Boston.
Headache—As the Neurosurgeon and the General Practitioner See It, J. Rudolph Jaeger, Philadelphia.
Management of Common Gynecological Problems, Walter J. Reich, Chicago.
Management and Diagnosis of Tumors of the Liver, George T. Pack, New York.
Diagnosis and Treatment of Acute Cardiovascular Emergencies, Joseph B. Vander Veer, Philadelphia.
Diagnosis and Treatment of Psychosomatic Disorders, Edward Weiss, Philadelphia.

A cocktail hour, 6:30-7:30 p. m., will precede dinner, after which Dr. John S. DeTar, Milan, Mich., will discuss "What the Academy of General Practice Means to the General Practitioner."

DELAWARE

State Medical Meeting at Wilmington.—The Medical Society of Delaware will hold its annual meeting at the Hotel DuPont, Wilmington, Oct. 12, under the presidency of Dr. Victor D. Washburn, Wilmington, who will deliver the presidential address, Wednesday, 11:30 a. m. On Tuesday, the annual reception and dinner will be followed, at 9 p. m., by an address by Dr. Thomas H. Alphin, Washington, D. C. Presentations at the scientific session include:

Daniel J. Preston and John W. Alden Jr., Wilmington, Incidence of Common Bile Duct Disease Following Surgical Exploration.
R. Douglas Sanders, Wilmington, Anesthesia Services in Delaware.
Harold S. Rafal, Wilmington, Report on Cancer Detection to the Physicians of Delaware.
Anthony F. DePalma, Philadelphia, Frozen Shoulder.
Richard A. Neubauer, Wilmington, Importance of Body Fluid and Electrolytes in Clinical Medicine.
Harold W. Lovell, New York, Abuse of the Barbiturates.
Hon. Thomas Herlihy Jr., Wilmington, Legal Aspects of the Barbiturate Problem in Delaware.
Cazivlle L. Hudiburg, Wilmington, American Medical Education Foundation.
Philip B. Gordy, Wilmington, Diagnosis and Treatment of Spontaneous Subarachnoid Hemorrhage.
William Likoff, Philadelphia, Treatment of Cardiac Emergencies.
William T. Green, Boston, Early Management in Poliomyelitis.
Chauncey L. Palmer, Pittsburgh, Medical Care Program for the Indigent in Pennsylvania.
Mark V. Ziegler, Baltimore, Administration of a Medical Care Program by the Maryland State Department of Health.
J. Wilfrid Davis, Baltimore, Baltimore City Medical Program.

ILLINOIS

Meeting to Honor Dr. Ciocatto.—The Illinois and Chicago societies of anesthesiologists will honor Dr. Enrico Ciocatto, professor of anesthesiology, University of Turin, Italy, at a buffet dinner and meeting at the Tally Ho room of the Sheraton Hotel, 505 N. Michigan Av., Chicago, Oct. 10, 6:30 p. m. Dr. Ciocatto, a native of Oklahoma, is editor-in-chief of the *Minerva Anesthesiologica* (Italian journal of anesthesiology). For reservation send check ($4.50), together with stamped, self-addressed return envelope, to Dr. Huberta M. Livingstone, 5805 Dorchester Ave., Chicago 37.

Award for Surgical Research.—The Chicago Surgical Society announces that the 1954 Nelson M. Percy award of $500 for surgical research will be made by Dr. Nelson M. Percy at the April or May meeting of the society. Contestants must reside in Cook County and be preparing for a surgical career. Members of the society are not eligible for the award but may be co-authors of the manuscript. A preliminary abstract of the work should be submitted to the secretary (Dr. Earl Garside, 5153 N. Clark St., Chicago 40) as soon after Oct. 1 as possible. The work must not have been previously published, but it may be presented at other meetings during the year, after the November meeting of the society, and may be submitted for publication, provided that the publication date is after the May meeting. At the time of presentation of the preliminary abstract the secretary should be informed of plans for other presentations and for publication.

Chicago

Free Lecture Series.—The Museum of Science and Industry, 57th and Lake Michigan, announces the following free lectures, Sundays, 3 p. m.:

Oct. 4, Skin Blemishes and Their Treatment, Herbert Rattner.
Oct. 11, Reducing Can Be Fun, Clifford J. Barborka.
Oct. 18, The Successful Marriage, Roland P. Mackay.
Oct. 25, How Old Are You? Morris Fishbein.

Dr. Goldblatt to Lecture at Mount Sinai.—The recently completed research laboratory and professional services building of the Mount Sinai Hospital of Chicago (*J. A. M. A.* **152**:616 [June 13] 1953) will be opened for the medical profession, on Oct. 7, with an open house, beginning at 1:30 p. m. At 4:30 p. m. Dr. Harry Goldblatt, director of laboratories and research, Mount Sinai Hospital, Cleveland, will deliver the dedicatory address "Present Status of the Renal Origin of Essential Hypertension."

INDIANA

Gift to University.—Dr. Goethe Link, Indianapolis, has given to Indiana University, Bloomington, his country home and 49 acres of land adjoining the university's Link Observatory property northwest of Martinsville.

Society News.—Dr. Robert A. Smith, New Castle, has been named president of the Indiana Academy of Ophthalmology and Otolaryngology; Dr. Cecil P. Clark, Indianapolis, president-elect; Dr. Raymond R. Calvert, Lafayette, vice-president; and Dr. John R. Swan, Indianapolis, secretary-treasurer.

Health Forums.—The Vanderburgh County Medical Society and the Evansville *Press* will present a series of free Sunday night public forums on health and medicine in Bosse High School auditorium, Evansville, Oct. 4, 11, 18, and 25, Nov. 1, 8, and 29, and Dec. 6. More than 70 members of the society indicated their willingness to appear on the panels.

Personal.—Dr. Marshall I. Hewitt, South Bend, has joined Parke, Davis & Company, Detroit, where he will be engaged in editing medical literature and other material for the information of physicians.——Dr. Lloyd W. Hisrich has been appointed secretary of the Batesville Board of Health.——Dr.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Dulania S. Wiggins, New Castle, has been named full-time physician for the Indiana Village for Epileptics.——Dr. Roscoe L. Sensenich, South Bend, past president of the American Medical Association and the Indiana State Medical Association, will head the state-wide fund raising drive of the Indiana division of the American Cancer Society.——Dr. Roscoe S. Yegerlehner, Kentland, has been made a member of the Kentland-Jefferson Consolidated School Board.——Dr. James S. McBride, Indianapolis, was honored for 30 years of antituberculosis work at the annual meeting of the Marion County Tuberculosis Association, when he was given the Mary A. Meyers Memorial Award.——Dr. Donald J. Caseley, formerly medical director of the Indiana University Medical Center, has been appointed medical director of St. Luke's Hospital in Chicago.——Dr. John H. Green, North Vernon, is retiring from the practice of medicine to become director of the clinical department at Muscatatuck State School, Butlerville. Dr. Green, who has practiced 42 years in Jennings County, was formerly president of the State Board of Health and has served as both city health officer and county health commissioner.——Dr. Mary Elizabeth Miller Genna, Indianapolis, has been appointed director of the Student-Employe Health Service at Indiana University Medical Center to succeed Dr. Harold N. Johantgen, who has gone into private practice at Shelby, Ohio. Dr. Genna was a member of the Student Health Service staff on the Bloomington campus for the past five years.

MICHIGAN

Triennial Reunion of Alumni.—The fifth triennial reunion of medical alumni of the University of Michigan Medical School and former members of the University Hospital staff will be held in Ann Arbor, Oct. 15-17. There will be a two day scientific session, with clinical conferences, a symposium on poliomyelitis, and other symposiums covering a variety of medical problems; on the third day there will be a special convocation of the medical school in the morning, and the Michigan-Northwestern football game in the afternoon. Details may be obtained from Dean Albert C. Furstenberg, 123 West Medical Building, University of Michigan, Ann Arbor. Headquarters for the meeting will be the Horace H. Rackham School of Graduate Studies. Registration fee is $5.

NEW JERSEY

Postgraduate Courses.—The Passaic County Medical Society is sponsoring a series of Friday lectures (4-6 p. m.) on office proctology, with Dr. Rudolph V. Gorsch, adjunct professor of proctology, New York Polyclinic Medical School and Hospital, as lecturer. A course in cardiology for general practitioners is offered on Tuesdays (4-6 p. m.). Courses will be held in the society building, 625 Broadway; fee, $50 per course. Details may be had from Dr. Wayne W. Hall, 515 Broadway, Paterson.

Dr. Bunnell to Give Albee Lecture.—In an all-day program on surgery of the hand, the second Fred H. Albee annual lecture on rehabilitation will be delivered at the Kessler Institute for Rehabilitation, West Orange, on the morning of Oct. 8, by Dr. Sterling Bunnell, San Francisco, who will speak on tendon surgery of the hand. Four panels have been planned for the afternoon. Dr. Edward J. Flynn, Boston, will speak on acute hand injuries (1-2 p. m.); Dr. J. Leonard Goldner, Durham, N. C., on reconstruction of the hand following cerebral palsy and traumatic spastic paralysis (2-3 p. m.); Dr. J. William Littler, New York, on phalangization (3-4 p. m.); and Dr. Jerome Gelb, Newark, on cineplasty in children (4-5 p. m.). Dr. Bunnell will summarize the program at the end of the day. Among the discussants are Drs. Herbert Conway, Emmanuel B. B. Kaplan, Leo Mayer, and Thomas W. Stevenson Jr., New York; Robert H. Clifford III, Detroit, and Henry H. Kessler, Newark, medical director of the institute. The lecture is open to all physicians. Those desiring to attend should communicate with the registrar at the Kessler Institute for Rehabilitation, Pleasant Valley Way, West Orange: ORange 3-6571.

NEW YORK

Reserved Seats for the Orchestral Meetings.—The Buffalo Philharmonic Orchestra Society has advised the Erie County Medical Society that it will reserve seats near the aisle for physicians and hospital personnel holding season tickets for either Sunday afternoon or Tuesday evening performances. Complete call service has been arranged.

Panel on Coronary Artery Disease.—A panel discussion on coronary artery disease will be a feature of the dinner meeting of the Onondago County Medical Society and the Syracuse Academy of Medicine, Oct. 6, at the veterans hospital in Syracuse. At 8:30 p. m., Drs. Walter F. Bugden and John J. Duggan, Syracuse, will speak on cardiovascular surgery. Reservations for dinner, 6 p. m., may be made by phoning Dr. Arthur N. Curtiss, SYracuse, 3-4000.

New York City

Cerebral Palsy Course.—The Columbia University College of Physicians and Surgeons announces a course in cerebral palsy, Oct. 12-23, designed for physicians and occupational and physical therapists. Information may be obtained from Dr. James E. McCormack, Associate Dean, Graduate Studies, College of Physicians and Surgeons, 630 W. 168th St., New York 32.

Medicolegal Lectures.—At a meeting of the clinical society of the New York Polyclinic Medical School and Hospital (345 W. 50th St.), Oct. 5, 8:30 p. m., Dr. Thomas A. Gonzales, chief medical examiner, will present "Medicolegal Investigations and Their Relation to Hospital Practice," and Dr. Alexander S. Wiener, serologist to the office of the chief medical examiner, will talk on "Medicolegal Aspects of Blood Tests." Discussion will be by Dr. Dominick J. Di Maio, director of the department of pathology and bacteriology, New York Polyclinic Medical School and Hospital. Members of the medical profession are cordially invited.

University News.—Dr. J. A. Werner Hetrick, president, New York Medical College, Flower and Fifth Avenue Hospitals, has announced the following appointments to the full-time faculty of the New York Medical College for the current academic year: Dr. Alvin M. Donnenfeld, assistant instructor in obstetrics-gynecology; Dr. Stanley R. Opler, assistant professor of pathology, and Drs. Thomas J. Hartnett and Joseph A. Preston, instructors in pathology; Dr. Irwin P. Train, associate professor of surgery; and Drs. Edward M. Miller, Martin E. Silverstein, and Bernard J. Wattiker, instructors in surgery. Dr. Edward J. Nightingale has been appointed student health officer and associate and assistant physician in the department of medicine.

OHIO

Narcotic Violation.—Dr. Walter C. Scheidt, Van Wert, pleaded *nolo contendere* in the U. S. District Court at Cleveland to a charge of violating the federal narcotic law, and on June 30, received a probationary sentence for a period of 18 months.

Cardiac Research.—The Central Ohio Heart Association, 30 E. Broad St., Columbus, has allocated $44,821.55 for research in the causes and treatment of heart disease and $11,800 for fellowships in cardiology. Work on these projects will be conducted at Ohio State University, University Hospital Heart Station, Ohio State Tuberculosis Hospital, and Children's Hospital, Columbus, and at Marion City Hospital and Frederick C. Smith Clinic, Marion.

PENNSYLVANIA

Cancer Program.—The ninth annual meeting and training school of the Pennsylvania division, American Cancer Society, which will be held at the Bedford Springs Hotel in Bedford, Oct. 9-11, offers the following program on Saturday morning:

Diagnosis and Management of Tumors of the Liver, George T. Pack, New York.
Modern Radical Radiotherapy of Cancer of the Cervix, Gilbert H. Fletcher, Houston, Texas.
End Results of Plastic Procedures in Tumors, S. Milton Dupertuis, Pittsburgh.

SOUTH DAKOTA

Medical Licensure.—The South Dakota Board of Medical Examiners has announced passage of legislation creating an annual registration fee of $2 for licenses in that state, effective Jan. 1, 1954. Physicians licensed in South Dakota who wish to maintain that license by payment of the registration fee should contact the South Dakota Board of Medical Examiners, 300 First National Bank Building, Sioux Falls.

TENNESSEE

Dr. Whitacre Goes to Nashville.—Dr. Frank E. Whitacre, chief of the division of obstetrics and gynecology at the University of Tennessee College of Medicine, Memphis, since July 1, 1945, has resigned in order to accept a similar position at the Vanderbilt University School of Medicine in Nashville. Dr. Whitacre served as house officer, instructor, and assistant professor at the University of Chicago from 1930 to 1938. He later joined the staff of the Rockefeller Foundation's medical college in Peiping, China, as professor of obstetrics and gynecology and head of the department and spent two years in a concentration camp in Manila after the Japanese invasion.

Postgraduate Courses.—The postgraduate department of the University of Tennessee Medical Units, Memphis, offers the following postgraduate courses: (1) Oct. 21-23, obstetrics and gynecology (John Gaston Hospital, teaching facility of the college of medicine), under the direction of the division of obstetrics and gynecology; (2) Nov. 4-6, pediatrics (Le Bonheur Children's Hospital), under direction of Dr. F. Thomas Mitchell, professor of pediatrics of the university and chief-of-staff at the hospital; (3) Nov. 18-20, cardiovascular diseases (Institute of Pathology), under direction of the division of medicine of the university. All courses will be limited to 20 physicians. Information may be obtained from the postgraduate department of the university, 4 S. Dunlap, Memphis.

WASHINGTON

Sickness Survey.—The Washington State Medical Association has announced results of its first sickness survey, held Jan. 20, and cosponsored by the University of Washington medical department, Seattle. Diseases of the respiratory system accounted for 17.4% of all visits by physicians; 17.5% of the visits (the largest group numerically) were not specifically related to sickness but were for prenatal and postnatal care, physical examinations, immunizations, etc. The third ranking cause for visits was fractures, sprains, and other externally caused damage to the locomotor system. The state association plans to repeat the survey four times during the year to allow for seasonal variation.

Dr. Wangensteen to Give the Strauss Lecture.—The department of surgery of the University of Washington School of Medicine, Seattle, will sponsor the annual Alfred A. Strauss lecture, Oct. 30, 8:15 p. m., in the Health Sciences Building, University of Washington campus. Dr. Owen H. Wangensteen, professor of surgery, University of Minnesota School of Medicine, Minneapolis, will speak on "Esophageal Aspects of the Peptic Ulcer Problem." The lecture is open to physicians and all other persons in the field of medicine. Dr. Wangensteen's book, "Intestinal Obstructions," received the Samuel D. Gross prize in 1935. The Seattle Surgical Society will give a dinner at the Ranier Club in honor of Dr. Wangensteen before the lecture.

WISCONSIN

Dr. Dailey Day.—The Elcho Community recently honored Dr. Paul J. Dailey on his 65th birthday with a parade, a picnic, a baseball game between the Elcho Cardinals and "Dr. Dailey's babies," and a dinner at the Muskie Inn Hotel. Dr. Dailey has practiced in Elcho for 40 years, has served for 27 years as president of the school board, and has been president of the Elcho State Bank since 1938. He is the town's health officer. His son, Dr. Dee W. Dailey, joined him in practice in 1946.

Course in Cardiology.—The University of Wisconsin Medical School, Madison, announces that a postgraduate course, entitled "Cardiologic Principles in General Practice," will be given Oct. 20-22, at Wisconsin General Hospital, Madison, under the direction of Dr. Herman H. Shapiro, associate professor of clinical medicine. Small group instruction in the reading of electrocardiograms, orthodiagrams, and in cardiologic diagnosis will be included. Symposiums will be held Tuesday, 2:30 p. m., on diagnosis and treatment of congenital heart disease and Thursday, 3:30 p. m., on diagnosis and treatment of uremia. The course will be limited to 20 registrants. Fee is $20, $5 of which must be sent with application to Dr. Robert C. Parkin, University of Wisconsin Medical School, 418 N. Randall Ave., Madison 6.

Dr. Miale Goes to Florida.—Dr. John B. Miale, director of laboratories for St. Joseph's Hospital, Marshfield, since 1946, has been appointed professor of clinical pathology at the University of Miami School of Medicine, Coral Gables, Fla., and will also serve as clinical pathologist at Jackson Memorial Hospital (University Hospital) in Miami, Fla. Dr. Miale has been affiliated with Cornell University Medical College and Brady Urological Institute, New York Hospital, New York; University of North Carolina School of Medicine in Chapel Hill; Strong Memorial-Rochester Municipal Hospitals, Rochester, N. Y.; and Watts Hospital, Durham, N. C. In 1951 he received the annual Sheard-Sanford award of $5,000 from the American Society of Clinical Pathologists for a paper entitled "The Role of Coagulase—Globulin in Normal and Abnormal Coagulation."

GENERAL

Isotope Catalog.—A new catalog of isotopes, both radioactive and stable, produced by Oak Ridge (Tenn.) National Laboratory is now available. The catalog replaces an edition published by the Atomic Energy Commission in March, 1951. More than 100 radioactive and 175 stable isotopes are listed in the new catalog, together with prices and descriptive material. The catalog, at $1 per copy, or information about ORNL-produced radioisotopes may be obtained by writing to Carbide and Carbon Chemicals Company, Oak Ridge National Laboratory, Radioisotope Sales Department, Post Office Box P, Oak Ridge, Tenn.

Award for Research on Infertility.—The American Society for the Study of Sterility announces the 1954 contest for the most outstanding contribution to the subject of infertility and sterility. The winner will receive a cash award of $1,000, and the essay will appear on the program of the 1954 meeting of the society. Essays submitted must be received not later than March 1, 1954, and should be accompanied by (1) a separate sheet of paper bearing a short biographical sketch of the author and (2) a photograph. For details address the American Society for the Study of Sterility, % Dr. Herbert H. Thomas, Secretary, 920 S. 19th St., Birmingham, Ala.

Meeting of Plastic Surgeons.—The American Otorhinologic Plastic Surgery Society, Inc., will hold its annual meeting at the Hotel Morrison, Chicago, Oct. 11, under the presidency of Dr. Harry Neivert, New York. The general membership meeting, 5:30 p. m., will be followed by cocktails and dinner, 7 p. m. The scientific program, 8 p. m., will open with the invitational address, "Operation—Face Lift," by Dr. John F. Pick, Chicago. Dr. James B. Brown, St. Louis, will present, by invitation, "Possibilities and Limitations in Plastic Surgery of the Nose," which will be followed by the round-table discussion, "Rhinoplastic Surgical Problems," at which Dr. Brown will be an honorary guest and Dr. Samuel F. Kelley, New York, will serve as moderator.

International Council of Pharmacologists.—At a meeting open to all pharmacologists attending the International Physiological Congress in Montreal, Canada, it was decided that a council of seven members from seven different nations should be established (1) to look after the interests of the pharmacologists in future international congresses, (2) to explore the possibility and desirability of affiliating with the newly formed

International Union of Physiological Sciences, (3) to collect and distribute information about the activities of pharmacological organizations, and (4) to perform such other functions as might seem necessary and advisable. Council members were elected from Italy, England, Belgium, Denmark, Switzerland, Germany, and the United States. Dr. Carl F. Schmidt, Philadelphia, was named secretary of the group, which adopted the name International Council of Pharmacologists.

Pathologists' Meeting in Chicago.—The annual meeting of the College of American Pathologists will be held at the Drake Hotel, Chicago, Oct. 12-13. Dr. Robert A. Moore, St. Louis, will serve as moderator for the panel discussion, "Methods and Policies of Teaching Pathology to Undergraduate Students," Monday, 10:15 a. m. Dr. Israel Davidsohn, Chicago, will be moderator for the panel discussion, "Training of Residents in Clinical Pathology," 3-5 p. m. This presentation will be followed by a fellowship hour, 5 p. m. Tuesday will be devoted to a "Symposium on Blood Bank Methodology," for which Dr. Donald H. Kaump, Detroit, will serve as moderator. Question and answer period panels will be held at 11:10 a. m. and 3:35 p. m. A fellowship hour in the grand ballroom, 6:30 p. m., will precede the banquet in the Gold Coast room.

Urologists Meet in Cincinnati.—The annual meeting of the North Central Section, American Urological Association, will be held in Cincinnati, Oct. 8-10. Honorary guest speaker will be Dr. George F. Cahill, New York, who will discuss "Adrenal Tumors." The following basic science lectures, by invitation, will be delivered: "The Use of Radioactive Isotopes in Medicine" by Otto Glasser, Ph.D., Cleveland; "Electromyography in the Study of the Urinary Bladder" by Edward L. Corey, Ph.D., Charlottesville, Va.; and "Basic Endocrinology of Man, Testicular Deficiency" by Dr. Alexander Albert, Rochester, Minn. A panel discussion, entitled "Newer Diagnostic Methods in Urology," by invitation, will be moderated by Dr. James C. Sargent, Milwaukee, with Drs. Edgar A. Webb, Minneapolis, Arthur T. Evans, Cincinnati, James W. Merricks, Chicago, and Eugene F. Poutasse, Cleveland, as collaborators.

Grants for Cancer Research.—Applications for grants for scholars in cancer research are being accepted by the Committee on Growth of the National Research Council, acting for the American Cancer Society. These awards are designed to bridge the gap between the completion of fellowship training and the period when the young scientist has thoroughly demonstrated his competence as an independent investigator. A grant of $18,000, payable over three years, will be made to each scholar's institution as a contribution toward his support, his research, or both. These grants are not restricted to the support of persons who have held American Cancer Society fellowships. Applications should be submitted by institutions on behalf of a candidate before Jan. 1, 1954. Information may be obtained from the Executive Secretary, Committee on Growth, National Research Council, 2101 Constitution Ave., N.W., Washington 25, D. C.

Association of American Physicians and Surgeons.—The annual meeting of the Association of American Physicians and Surgeons will be held at the LaSalle Hotel, Chicago, Oct. 8-10. An address of welcome will be delivered by Dr. Walter C. Bornemeier, president, Chicago Medical Society. On Friday, 10:25 a. m., Dr. Lewis A. Alesen, Los Angeles, immediate past president of the California Medical Association, will have as his topic "Is the Trend Reversed?" The Hon. John W. Bricker, U. S. Senator from Ohio, will speak at the banquet Friday, 7 p. m. Other guest speakers include the Honorable Carl T. Curtis, U. S. Representative from Nebraska, the Honorable Ralph W. Gwinn, U. S. Representative from New York, Mr. Kenneth McFarland, Topeka, Kan., educational consultant to General Motors, and Mr. Arthur L. Conrad, Chicago, president, the Heritage Foundation. Tickets for the president's luncheon ($3.50) may be obtained at the registration desk before Thursday noon and reservations for the banquet ($6.50) before 10 a. m. Friday.

Gastroenterologists Meet in Los Angeles.—The annual convention of the National Gastroenterological Association will be held at the Biltmore Hotel, Los Angeles, Oct. 12-14 under the presidency of Dr. Felix Cunha, San Francisco. Dr. Cunha will preside over the first session, Monday morning, which will be devoted to a symposium on cirrhosis of the liver. Tuesday, 9 a. m., Dr. Lynn A. Ferguson, Grand Rapids, Mich., will serve as moderator for a panel discussion on diagnosis and management of disease of the large bowel, and Tuesday afternoon a panel discussion on peptic ulcer will be presented by three invited speakers, Drs. Stephen J. Stempien, Beverly Hills, Calif., Joseph A. Weinberg, Long Beach, Calif., and Garnett Cheney, San Francisco. The sessions will close with a panel discussion Wednesday, 4:25 p. m., on latest developments in cancer of the gastrointestinal tract, which will be moderated by Dr. William C. Boeck, Los Angeles, by invitation. The president's annual reception will be held Monday, 7:30 p. m., under the sponsorship of Winthrop-Stearns, Inc. Admission is by card only, to be obtained at the convocation ceremony, Monday, 6 p. m. The annual banquet is scheduled for Tuesday, 7 p. m. A course in postgraduate gastroenterology will be held Oct. 15-17.

Professional Color Television Broadcasters.—The American Cancer Society, in conjunction with the Columbia Broadcasting System TV network, will produce during 1953-1954 a series of 30 closed-circuit one-hour color television programs for physicians in general practice. The series will be viewed by practitioners in Boston, Philadelphia, Pittsburgh, Detroit, Toledo, and New York, with the possibility that other cities will be added as the series progresses. All programs will originate in New York, from the Columbia-Presbyterian Medical Center and from the Memorial Center for Cancer and Allied Diseases. The tentative starting date for the series is Oct. 21, 5-6 p. m., from a studio in Frances Delafield Hospital at Columbia. Programs will be broadcast on alternate Wednesdays up to Dec. 2, after which they will be presented weekly. Each program will be viewed at the receiving end on the new giant color television projection screen, demonstrated publicly for the first time at the recent A. M. A. meeting in New York. In the New York area, the receiver will be located at the New York Academy of Medicine (Hosack Hall). It is estimated that about 3,000 physicians will view the programs as they are telecast. The programs will be color kinescoped, and the kinescopes will ultimately be made available to local medical societies through regional and state offices of the American Cancer Society.

Trudeau-Saranac Consolidation.—The board of trustees of Trudeau Sanatorium, Trudeau, N. Y., recently voted to merge the activities of the Trudeau Sanatorium (the parent corporate body), the Edward L. Trudeau Foundation (a fund established to assist in carrying out the research program of the entire Trudeau organization) and the Saranac Laboratory (one of the research laboratories of the Trudeau organization, which will continue to function under that name), under one administrative organization, with Dr. Gordon M. Meade, formerly medical director of Trudeau Sanatorium, as executive director. This change was made in the interest of uniformity of objectives and increased efficiency of operation. Word of the reorganization has led to erroneous reports that the work of the Saranac Laboratory and other Trudeau laboratories in the field of pulmonary diseases of industrial origin would be discontinued. The board of trustees states that it not only intends to continue research and teaching in the fields of tuberculosis and pulmonary diseases of industrial origin but hopes to expand the work in the latter field. Pending appointment of a successor to Dr. Arthur J. Vorwald, director of the Saranac Laboratory who resigned July 1, work of the laboratory continues under the supervision of Dr. Philip C. Pratt.

A pamphlet, entitled "Answers to Questions from Physicians About Trudeau Sanatorium," was recently prepared to bring physicians up-to-date on the sanatorium, which will celebrate its 70th anniversary next year. Copies of the pamphlet may be had on request to Dr. Roger S. Mitchell, Clinical Director, Trudeau Sanatorium, Trudeau, N. Y.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

	Sept. 19, 1953		
Area	Paralytic Type	Total Cases Reported	Sept. 20, 1952 Total
New England States			
Maine	15	26	9
New Hampshire	..	1	4
Vermont	4	8	3
Massachusetts	21	47	35
Rhode Island	13	28	9
Connecticut	3	23	27
Middle Atlantic States			
New York	66	236	177
New Jersey	23	55	58
Pennsylvania	..	114	152
East North Central States			
Ohio	42	198	283
Indiana	..	53	152
Illinois	60	139	424
Michigan	60	142	260
Wisconsin	..	47	223
West North Central States			
Minnesota	49	179	388
Iowa	9	41	202
Missouri	8	51	85
North Dakota	3	14	21
South Dakota	..	10	87
Nebraska	4	8	209
Kansas	2	35	180
South Atlantic States			
Delaware	2	3	7
Maryland	23	43	19
District of Columbia	1	3	8
Virginia	15	36	47
West Virginia	14	29	42
North Carolina	13	30	27
South Carolina	1	6	13
Georgia	5	21	29
Florida	12	40	30
East South Central States			
Kentucky	4	8	151
Tennessee	7	15	44
Alabama	6	11	18
Mississippi	..	3	39
West South Central States			
	9	16	19
	7	10	33
	6	21	87
Texas	22	72	117
Mountain States			
Montana	12	25	15
Idaho	..	4	16
Wyoming	..	3	10
Colorado	4	9	53
New Mexico	..	8	25
Arizona	4	11	16
Utah	..	11	15
Nevada	..	3	..
Pacific States			
Washington	..	38	88
Oregon	10	19	27
California	107	205	196
Territories and Possessions			
Alaska	..	..	..
Hawaii	..	..	2
Puerto Rico	..	..	..
Total	666	2,158	4,181

Anesthesiologists Meet in Seattle.—The American Society of Anesthesiologists will hold its annual meeting at the Olympic Hotel, Seattle, Oct. 5-9, under the presidency of Dr. Ralph T. Knight, Minneapolis. Dr. John S. Lundy, Rochester, Minn., will serve as moderator at a panel discussion entitled "What Part Can the Anesthesiologist Play in Civil Defense," which will be presented at a 12:30 p. m. luncheon meeting Thursday in the Georgian Room. Participants include Drs. Jesse Allen and Frank L. Cole, San Francisco, Dr. Joel W. Baker, Dr. Quin B. DeMarsh, Dr. Frank J. Leibly, Dr. Frederic C. Moll, and Rear Adm. James R. Fulton (MC) USN, Seattle, Vice Adm. Daniel E. Barbey, USN (Ret.), Dr. John A. Kahl, Seattle, and Dr. Melvin A. Casberg, Washington, D. C. At the Friday luncheon in the Georgian Room Dr. Robert W. Virtue, Denver, will be moderator for a panel discussion on circulatory problems associated with anesthesia. Participants will be Drs. Frederick H. Van Bergen, Minneapolis, Benjamin E. Etsten Boston, Fiorindo A. Simeone, Cleveland, and Earl H. Wood, Rochester, Minn. In addition to these presentations 46 papers will be read. On Oct. 5-6, 78 refresher courses will be conducted on the mezzanine floor. On Wednesday evening will be the first showing, 6 p. m., in the Olympic Bowl, of the motion picture "Intravenous Anesthesia with Barbiturates," produced through the cooperation of the American Society of Anesthesiologists and the American College of Surgeons and sponsored by Abbott Laboratories. Members, wives, and guests are invited. Thursday there will be a dinner dance in the Georgian Room, when the distinguished service award will be presented to Dr. Henry S. Ruth, Haverford, Pa. The guest speaker, Dr. Enrico Ciocatto, professor of anesthesiology, University of Turin, Italy, who will be introduced by Dr. John J. Bonica, Tacoma, Wash., will speak on "Our Method of Selective Analgesia Block for the Therapy of Intractable Pains." Dr. Ciocatto will also conduct two refresher courses.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Clinical Meeting, St. Louis, Dec 1-4.
1954 Annual Meeting, San Francisco, June 21-25.
1954 Clinical Meeting, Miami, Florida, Nov. 30-Dec. 3.
1955 Annual Meeting, Atlantic City, N. J., June 6-10.
1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

American Academy for Cerebral Palsy, Western Hills Hotel, Fort Worth, Texas, Oct 30-31. Dr. Harry E. Barnett, 116 S. Michigan Blvd., Chicago 3, Secretary.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 12-16. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

American Academy of Pediatrics, Municipal Auditorium, Miami, Fla., Oct. 6-9. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Secretary.

American Academy of Tropical Medicine, Brown Hotel, Louisville, Ky., Nov. 12-14. Dr. E. Harold Hinman, University of Puerto Rico, School of Medicine, San Juan 22, P. R., Secretary.

American Association of Blood Banks, LaSalle Hotel, Chicago, Oct. 17-20. Miss Marjorie Saunders, 3500 Gaston Ave., Dallas 4, Texas, Secretary.

American Association of Medical Clinics, Congress Hotel, Chicago, Oct. 9-11. Dr. Edwin P. Jordan, P. O. Box 114, Charlottesville, Va., Executive Director.

American Association of Medical Record Librarians, Palace Hotel, San Francisco, Oct. 5.9. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Secretary.

American Cancer Society, New York, Nov. 2-6. Dr. Charles S. Cameron, 47 Beaver St., New York 4, Medical Director.

American Clinical and Climatological Association, The Homestead, Hot Springs, Va., Nov. 2-4. Dr. Marshall N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Cardiology, Hotel Statler, Cleveland, Ohio, Nov. 6-7. Dr. Philip Reichert, 480 Park Ave., New York 22, Secretary.

American College of Surgeons, Conrad Hilton Hotel, Chicago, Oct. 5-9. Dr. Michael L. Mason, 40 East Erie St., Chicago, Secretary.

American Fracture Association, Mission Inn, Riverside, Calif., Oct. 12-15. Dr. H. W. Wellmerling, 120 S. LaSalle St., Chicago 3, Secretary.

American Otorhinologic Society for Plastic Surgery, Morrison Hotel, Chicago, Oct. 11. Dr. Louis J. Feit, 66 Park Ave., New York, Secretary.

American Public Health Association, Hotel New Yorker and Hotel Statler, New York, Nov. 9-13. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American School Health Association, Hotel New Yorker, New York, Nov. 9-13. Dr. A. O. DeWeese, 515 East Main St., Kent, Ohio, Secretary.

American Society of Anesthesiologists, Olympic Hotel, Seattle, Oct. 6-9. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago, Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicago, Oct. 12-16. Dr. Clyde G. Culbertson, 1040 W. Michigan St., Indianapolis, Secretary.

American Society for the Study of Arteriosclerosis, Hotel Knickerbocker, Chicago, Nov. 1-2. Dr. O. J. Pollak, P. O. Box 228, Dover, Del., Secretary.

American Society of Tropical Medicine and Hygiene, Brown Hotel, Louisville, Ky., Nov. 12-14. Dr. John E. Larsh Jr., University of North Carolina, School of Public Health, Chapel Hill, N. C., Secretary.

Association of American Medical Colleges, Hotel Claridge, Atlantic City, N. J., Oct. 26-28. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of Life Insurance Medical Directors of America, Hotel Statler, New York, Oct. 14-16. Dr. Henry B. Kirkland, P. O. Box 594, Newark 1, N. J., Secretary.

Association of Medical Illustrators, Sheraton Hotel, Baltimore, Oct. 5-7. Miss Evelyn J. Erickson, 1512 St. Antoine St., Detroit 26, Secretary.

Association of Military Surgeons of the United States, Hotel Statler, Washington, D. C., Nov. 8-11. Dr. R. R. Sayers, Armed Forces Institute of Pathology, Washington 25, D. C., Secretary.

Association of State and Territorial Health Offcers, Washington Hotel, Washington, D. C., Nov. 4-7. Dr. John D. Porterfield, 306 Ohio Depts. Bldg., Columbus 15, Ohio, Secretary.

Central Association of Obstetricians and Gynecologists, The Shamrock, Houston, Texas, Nov. 5-7. Dr. Harold L. Gainey, Suite 602, 116 South Michigan Ave., Chicago 3, Secretary.

Central Neuropsychiatric Association, Claypool Hotel, Indianapolis, Oct. 15-17. Dr. Hamilton Ford, 112 North Blvd., Galveston, Texas, Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 12-16. Dr. Harry P. Smith, 203 N. Wabash Ave., Chicago 1, Secretary.

Constantinian Society, Battery Park Hotel, Asheville, N. C., Oct. 18-21. Dr. C. F. Shook, Medical Director, Owens-Illinois Glass Company, Toledo 1, Ohio, Secretary.

Delaware, Medical Society of, Hotel du Pont, Wilmington, Oct. 12-14 Dr. Andrew M. Gehret, 822 North American Bldg., Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Washington, Oct. 5-7. Mr. Theodore Wiprud, 1718 M St. N.W., Washington 6, Secretary.

Gulf Coast Clinical Society, Admiral Semmes Hotel, Mobile, Ala., Oct. 15-16. Dr. William J. Atkinson Jr., 1217 Government St., Mobile 20, Ala., Secretary.

Indiana State Medical Association, French Lick, Oct. 19-21. Mr. James A. Waggener, 23 E. Ohio St., Indianapolis 4, Executive Secretary.

Interstate Post Graduate Medical Association of North America, Palmer House, Chicago, Nov. 2-5. Dr. E. R. Schmidt, 1300 University Ave., Madison 5, Wisconsin, Secretary.

Inter-Society Cytology Council, Philadelphia, Nov. 19-20. Dr. Paul F. Fletcher, 634 North Grand Blvd., St. Louis 3, Secretary.

Midwestern Section of American Federation for Clinical Research, Congress Hotel, Chicago, Oct. 29. Dr. Robert J. Glaser, 600 S. Kingshighway Blvd., St. Louis 10, Secretary.

National Association for Mental Health, New York, Nov. 17-19. Dr. George S. Stevenson, 1790 Broadway, New York 19, Medical Director.

National Gastroenterological Association, Hotel Biltmore, Los Angeles, Oct. 12-17. Dr. A. Xerxes Rossien, 1819 Broadway, New York 23, Secretary.

National Proctologic Association, Congress Hotel, Chicago, Oct. 15-17. Dr. George E. Mueller, 59 East Madison St., Chicago 2, Secretary.

National Society for Crippled Children and Adults, Palmer House, Chicago, Nov. 12-14. Mr. Lawrence J. Linck, 11 South LaSalle St., Chicago 3, Secretary.

New England Obstetrical and Gynecological Society, Hotel Somerset, Boston, Oct. 28. Dr. Carmi R. Alden, 270 Commonwealth Ave., Boston, Secretary.

New Hampshire Medical Society, Equinox House, Manchester, Vt., Oct. 4-6. Dr. Deering G. Smith, 44 Chester St., Nashua, Secretary.

North Pacific Surgical Association, Victoria, B. C., Nov. 20-21. Dr. John A. Duncan, 509 Olive Way, Seattle, Secretary.

Oklahoma City Clinical Society, Oklahoma City, Oct. 26-29. Miss Alma F. O'Donnell, 512 Medical Arts Bldg., Oklahoma City 2, Executive Secretary.

Omaha Mid-West Clinical Society, Hotel Paxton, Omaha, Oct. 26-30. Miss Irene Rau, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Oregon State Medical Society, Heathman Hotel, Portland, Oct. 14-17. Dr. Charles E. Littlehales, 833 S.W. Eleventh Ave., Portland 5, Secretary.

Regional Meetings, American College of Physicians:

- Western New York, Syracuse, Oct. 9. Dr. E. C. Reifenstein, 109 South Warren St., Syracuse 2, Governor.
- Ohio, Dayton, Oct. 9. Dr. Charles A. Doan, Ohio State University College of Medicine, Columbus 10, Governor.
- Midwest—Ill., Ind., Iowa, Minn., Wis.—Hotel Schroeder, Milwaukee, Nov. 21. Dr. Francis D. Murphy, 536 West Wisconsin Ave., Milwaukee 3, Chairman.
- Montana-Wyoming, Missoula, Mont., Oct. 9-10. Dr. Harold W. Gregg, 127 West Park Street, Butte, Mont., Governor.
- New England—Conn., Maine, Mass., N. H., R. I., Vt.—Hartford, Conn., Oct. 28. Dr. John C. Leonard, 80 Seymour St., Hartford 15, Conn., Chairman.
- New Jersey, Trenton, Nov. 4. Dr. Edward C. Klein Jr., 73 Lincoln Park, Newark 2, Governor.
- Southeastern—Cuba, Alabama, Florida, Georgia, South Carolina—St. Simons, Sea Island, Ga., Oct. 16-17. Dr. Carter Smith, 384 Peachtree St. N.E., Atlanta 3, Ga., Chairman.

Regional Meetings, American Rheumatism Association:

- Ohio and Western Pennsylvania, Mayflower Hotel, Akron, Ohio, Nov. 11. Dr. Roger Q. Davis, 1405 Goodyear Blvd., Akron 5, Ohio, Chairman.

Southern Medical Association, Municipal Auditorium, Atlanta, Ga., Oct. 26-29. Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham 3, Ala., Secretary.

Southwestern Medical Association, Pioneer Hotel, Tucson, Ariz., Oct. 29-31. Dr. C. C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

Vermont State Medical Society, Equinox House, Manchester, Oct. 4-6. Dr. James P. Hammond, 542 Main St., Bennington, Secretary.

Virginia, Medical Society of, Hotel Roanoke, Roanoke, Oct. 18-21. Mr. Robert I. Howard, 1105 W. Franklin St., Richmond 20, Executive Secretary.

Western Orthopedic Association, Sun Valley, Idaho, Oct. 5-8. Dr. Forrest L. Flashman, 1301 Spring St., Seattle 4, Secretary.

Wisconsin, State Medical Society of, Hotel Schroeder, Milwaukee, Oct. 5-8. Mr. Charles H. Crownhart, 709 East Gorham St., Madison 3, Secretary.

FOREIGN

Association of Surgeons of Great Britain and Ireland, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

Canadian Medical Association, Vancouver, B. C., Canada, June 18-22, 1954. Dr. T. C. Routley, 135 St. Clair Ave. W., Toronto 5, Ont., Canada, General Secretary.

Congress of International Anesthesia Research Society, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

International Cancer Congress, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

International Conference on Thrombosis and Embolism, Basle, Switzerland, July 15-19, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

International Congress on Group Psychotherapy, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

International Congress of Hydroclimatism and Thalassotherapy, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni Venac 1, Belgrade, Yugoslavia, Secretary General.

International Congress of International College of Surgeons, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress on Mental Health, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

International Congress on Obstetrics and Gynecology, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

International Congress of Ophthalmology, Montreal, Canada, Sept. 10-11, 1954, and Waldorf-Astoria, New York, N. Y., U. S. A., Sept. 13-17, 1954. Dr. William L. Benedict, 100 First Avenue Building, Rochester, Minnesota, U. S. A., Secretary-General.

International Congress of Orthopedic Surgery and Traumatology, Berne, Switzerland, Aug. 30-Sept. 3, 1954. For information write: Professor M. Dubois, Isle-Hospital, Berne, Switzerland.

International Congress of Paediatrics, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

International Congress of Psychology, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

International Congress for Psychotherapy, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

International Gerontological Congress, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

International Leprosy Congress, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

International Office of Documentation of Military Medicine, Rome, Italy, Oct. 14-18. Colonel Medecin Prof. A. Campana, Office of the Ministero della Difesa-Esercito, Rome, Italy, Secretary.

International Poliomyelitis Congress, Rome, Italy, Sept. 6-10, 1954. For information write: Mr. S. Henwood, 120 Broadway, New York 5, N. Y., U. S. A.

International Society for Cell Biology, Leiden, Netherlands, Sept. 2-9, 1954. Professor Peter J. Gaillard, University of Leiden, Leiden, Netherlands, Secretary.

International Society of Geographical Pathology, Washington, D. C., U. S. A., Sept. 6-10, 1954. Professor Fred C. Roulet, Hebelstrasse 24, Basle, Switzerland, Secretary-General.

Journees Medicales, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geofroix, Colombes (Seine) France.

Latin American Congress of Obstetrics and Gynecology, Buenos Aires, Argentina, Oct. 26-31.

Latin American Congress of Otorhinolaryngology, Caracas, Venezuela, *Feb.* 21-25, 1954. Dr. Victorino Marquez Reveron, Centro, Medico, Caracas, Venezuela, Secretary-General.

Pacific Science Congress, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, Mexico, D.F., Mexico, Feb. 28-March 4, 1954. Dr. Pedro Hernandez Gonzalo, 8 No. 358, Vedado, Havana, Cuba, General Secretary.

Pan American Medical Association, International Medical Cruise Congress, S. S. Nieuw Amsterdam, Jan. 6-22, 1954. Dr. Joseph J. Eller, 745 Fifth Avenue, New York 22, N. Y., U. S. A., Executive Director.

Persian Gulf Medical Society, Dhahran, Saudi Arabia, Dec. 7-8. Dr. N. J. Conan Jr., Department of Internal Medicine, Arabian American Oil Company, Dhahran, Saudi Arabia, Secretary.

Regional Meeting, American College of Physicians, San Juan, Puerto Rico, Oct. 15-17. Dr. R. Rodriquez-Molina, Veterans Administration Center, San Juan, Puerto Rico, Governor.

Sectional Meeting, American College of Surgeons, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

South American Congress of Angiology, Sao Paulo, Brazil, July 1954. For information write: Dr. Rubens Carlos Mayall, Rua Senador Vergueiro 73, Rio de Janeiro, Brazil, S. A.

World Congress of International Society for the Welfare of Cripples, The Hague, Netherlands, Sept. 13-17, 1954. For information write: D. C. Schaap, Centrale Vereniging, Apeldoorschweg 51, Arnhem, Netherlands.

World Federation of Occupational Therapists, Edinburgh, Scotland, August 17, 1954.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination*. Montgomery, June 22-24, 1954. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery.

Arizona:* Examination. Phoenix, Oct. 22-23. Endorsement. Phoenix, Oct. 24. Executive Secretary, Mr. Robert Carpenter, 401 Security Bldg., Phoenix.

Arkansas:* *Examination*. Little Rock, Nov. 5-6. Sec., Dr. Joe Verser, Harrisburg.

Colorado:* *Reciprocity*. Denver, Oct. 13. Final date for filing application was Sept. 14. *Examination*. Denver, Dec. 15-16. Final date for filing application is Nov. 14. Executive Secretary, Miss Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

Connecticut:* *Regular. Examination*. New Haven, Nov. 10-11. Reciprocity actions are taken continuously. Secretary to the Board, Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic*. Derby, Nov. 10-11. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

Delaware: Dover, Jan. 12-14, 1954. Sec., Dr. Joseph S. McDaniel, 229 South State St., Dover.

Florida:* *Examination*. Jacksonville, Nov. 22-24. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami 36.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Director of Medical Services, Guam Memorial Hospital, Agana.

Hawaii: Honolulu, Jan. 11-14. *Examination*. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

Idaho: Boise, Jan. 11-13, 1954. Executive Secretary, Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: Chicago, Oct. 6-8. Superintendent of Registration, Mr. Fredric B. Selcke, State House, Springfield.

Iowa:* *Examination*. Des Moines, Dec. 7-9. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Topeka, Dec. 9-10. Sec., Dr. O. W. Davidson, 864 New Brotherhood Bldg., Kansas City.

Kentucky: *Examination*. Louisville, Dec. 7-9. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville.

Maine: Portland, Nov. 12-13. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

Maryland: *Examination*. Baltimore, Dec. 8-11. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore 1.

Michigan:* *Examination*. Lansing, Oct. 14-16. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing 8.

Minnesota:* Minneapolis, Oct. 20-22. Sec., Dr. E. M. Jones, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity*. Jackson, December. Assistant Secretary, Dr. R. Whitfield, Old Capitol, Jackson 113.

Missouri: Kansas City, Oct. 22-24. Ex. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

Montana: Helena, Oct 5. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

Nebraska:* *Examination*. Omaha, June 1954. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada:* Reno, Oct. 6. Sec., Dr. George H. Ross, 112 Curry St., Carson City.

New Jersey: *Examination*. Trenton, Oct. 20-23. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

New Mexico:* Oct. 12-13, Santa Fe. Sec., R. C. Derbyshire, 227 E. Palace Ave., Sante Fe.

New York: *Examination*. New York, Syracuse, Buffalo and Albany, Oct. 6-9. Sec., Dr. Stiles D. Ezell, 23 South Pearl St., Albany.

North Carolina: *Reciprocity*. Asheville, Oct. 12. Sec., Dr. Joseph J. Combs, 716 Professional Bldg., Raleigh.

North Dakota: *Examination*. Grand Forks, Jan. 6-9, 1954. *Reciprocity*. Grand Forks, Jan. 9. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Examination*. Columbus, December. *Reciprocity*. Columbus, Oct. 6. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

Oregon:* *Reciprocity*. Portland, Oct. 16-17. Sec., Dr. Wilmot C. Foster, 609 Failing Bldg., Portland 4.

Pennsylvania: *Examination*. Philadelphia, January 1954. Acting Secretary, Mrs. Margaret G. Steiner, Box 911, Harrisburg.

South Dakota:* *Examination*. Sioux Falls, Jan. 19-20, 1954. Reciprocity can be obtained at any time between meetings of board. Executive Secretary, Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Texas: Fort Worth, Nov. 12-14. Reciprocity applicants must be completed 30 days prior to the meeting date. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination and Reciprocity*. Salt Lake City, Nov. 17. Director, Mr. Frank E. Lees, 314 State Capitol, Salt Lake City 1.

Virginia: *Examination*. Richmond, Dec. 3-5. *Reciprocity*. Richmond, Dec. 2. Address: Board of Medical Examiners, 631 First St. S.W., Roanoke.

Virgin Islands: *Examination*. Charlotte Amalie, Nov. 11-12. Sec., Dr. Earle M. Rice, Box 90, St. Thomas.

West Virginia: Charleston, Oct. 19. Sec., Dr. N. H. Dyer, State Office Bldg., Charleston 5.

Wisconsin:* *Reciprocity*. Madison, October 23. *Examination and Reciprocity*. Madison, Jan. 12-14, 1954. Sec., Dr. A. G. Koehler, 46 Washington Blvd., Oshkosh.

Wyoming: Cheyenne, Oct. 5. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity*. On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

Arkansas: *Examination*. Little Rock, Oct. 6-7. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock.

Connecticut: *Examination*. New Haven, Oct. 10. Address: State Board of Healing Arts, 52 Whitney Ave., New Haven 10.

District of Columbia: *Examination*. Washington, Oct. 19-20. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

Florida: *Examination*. Gainesville, Nov. 7. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

Iowa: *Examination*. Des Moines, Oct. 13. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination*. Detroit and Ann Arbor, Oct. 9-10. Sec., Mrs. Ann Baker, 410 W. Allegan St., Lansing.

Minnesota: *Examination*. Minneapolis, Oct. 6-7. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.

Nebraska: *Examination*. Omaha, Oct. 6-7. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada: *Examination*. Reno, Oct. 6. Sec., Dr. Donald G. Cooney, Box 9005, University Station, Reno.

New Mexico: *Examination*. Santa Fe, Oct. 18. Sec., Mrs. Marguerite Cantrell, Box 1592, Santa Fe.

South Dakota: *Examination*. Vermillion, Dec. 4-5. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Tennessee: *Examination*. Memphis, Sept. 23-24. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

Texas: *Examination*. Austin, October 16 and 17. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Wisconsin: *Examination*. Madison, Sept. 19. Final date for filing application is Sept. 11. Milwaukee, Dec. 5. Final date for filing application is Nov. 27. Sec., Dr. W. H. [illegible] 21 Ransom St., Ripon.

DEATHS

Moore, John Jay ⊕ Colonel, U. S. Army, retired, San Antonio, Texas; born in Fostoria, Ohio, Nov. 12, 1888; Starling-Ohio Medical College, Columbus, 1912; began his military career in 1917 when he was commissioned a first lieutenant in the regular army; a leading radiologist in the Army, started his work in this field in 1919 and held posts as chief of the x-ray and radium services at Walter Reed Army Hospital, Washington, D. C., Letterman Army Hospital, San Francisco, Gorgas Army Hospital, Panama Canal Zone, Tripler Army Hospital, Honolulu, T. H., and Brooke Army Hospital, Fort Sam Houston, Texas; served as an instructor and head of the x-ray department at the Army Medical School, Washington, D. C.; during World War II commanded the Medical Department Enlisted Technicians' schools at Fort Sam Houston, Texas, and Fort Benjamin Harrison, Ind.; in command of the Medical Department Enlisted Technicians' School at Fitzsimons Army Hospital in Denver, when he was retired for physical disability in September, 1947; member of the American Roentgen Ray Society and the American College of Radiology; fellow of the American College of Surgeons; died in Brooke Army Hospital, Fort Sam Houston, July 31, aged 64, of arteriosclerotic heart disease.

Simmons, Channing Chamberlain ⊕ Newton, Mass.; born in Boston in 1877; Harvard Medical School, Boston, 1899; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons; member of the American Surgical Association and the New England Surgical Society, of which he was vice-president in 1934; awarded a bronze medal by the American Cancer Society (Massachusetts Division), Inc., in 1949 in recognition of his important contributions to cancer, and more particularly because as a member of the Massachusetts Division's Committee on Publication had edited the book "Cancer—A Manual for Practitioners"; for many years affiliated with the Massachusetts General Hospital in Boston, where he died Aug. 15, aged 76.

Allen, Abbott William ⊕ Caldwell, N. J.; Columbia University College of Physicians and Surgeons, New York, 1927; certified by the National Board of Medical Examiners; formerly assistant clinical professor of medicine, Post-Graduate Medical School of the New York University-Bellevue Medical Center, New York; died Aug. 1, aged 50.

Bailey, Louis John Carrick ⊕ Greensburg, Pa.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1888; served during World War I; fellow of the American College of Surgeons; on the staff of the Westmoreland Hospital; died July 2, aged 85.

Barron, Oliver Bridges, Hemet, Calif.; Memphis (Tenn.) Hospital Medical College, 1910; on the staff of the Hemet Hospital; member of the board of trustees of the Hemet Public Library; died in Loma Linda (Calif.) Hospital July 2, aged 70, of carcinoma of the colon and stomach.

Beyer, William ⊕ Edgewater, N. J.; New York Homeopathic Medical College and Flower Hospital, New York, 1927; health officer; served during World War II; affiliated with Englewood (N. J.) Hospital, where he died Aug. 20, aged 53, of carcinoma of the stomach.

Billion, Thomas J. ⊕ Sioux Falls, S. D.; John A. Creighton Medical College, Omaha, 1901; specialist certified by the American Board of Internal Medicine; affiliated with McKennan Hospital, where he was first president of the staff and where he died July 8, aged 74, of dissecting aneurysm of the abdominal aorta.

Blanton, Marvin Asbury ⊕ Union City, Tenn.; Vanderbilt University School of Medicine, Nashville, 1903; member of the American Academy of General Practice; on the staff of the Obion County General Hospital; died July 23, aged 74, of coronary thrombosis.

Bonathan, Alvin Thomas ⊕ Flint, Mich.; University of Michigan Medical School, Ann Arbor, 1929; member of the American Academy of General Practice; served during World War I; affiliated with St. Joseph, Hurley, and McLaren General hospitals; director of Merchants and Mechanics Bank; died July 28, aged 55, of coronary heart disease.

Brentan, Emanuel ⊕ Albuquerque, N. Mex.; State University of Iowa College of Medicine, Iowa City, 1939; served during World War II; formerly associated with the Indian Service; died Aug. 1, aged 42.

Brooks, LeRoy ⊕ San Francisco; Marquette University School of Medicine, Milwaukee, 1921; fellow of the American College of Surgeons; on the staff of the Franklin Hospital; died Aug. 1, aged 60.

Brown, Thomas Jacob, Washington, D. C.; Howard University College of Medicine, Washington, 1922; died Aug. 8, aged 55, of cerebral accident, hypertension, and cardiorenal disease.

Bugher, Corwin E., Wilmington, Del.; Medical College of Ohio, Cincinnati, 1887; died in the Delaware Hospital June 5, aged 92, of uremia and chronic glomerulonephritis.

Dorminy, James Norwood ⊕ Cordele, Ga.; University of Georgia Medical Department, Augusta, 1896; died in Americus and Sumter County Hospital in Americus Aug. 2, aged 83, of carcinomatosis of neck, gland and chest.

Drake, William Francis ⊕ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1922; affiliated with Mount Carmel Hospital, where he died July 19, aged 56, of cerebral hemorrhage.

Fisk, Frank Byron ⊕ Indianapolis; Chicago College of Medicine and Surgery, 1913; died in Tarrytown, N. Y., July 10, aged 69, of coronary thrombosis.

Freedman, I. Val ⊕ Phoenix, Ariz.; Chicago College of Medicine and Surgery, 1909; an Associate Fellow of the American Medical Association; member of the Illinois State Medical Society; died in Chicago Aug. 3, aged 71, of coronary occlusion.

Fritz, Clarence Henry ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1895; died July 29, aged 80, of bronchopneumonia.

Fuchs, Julius ⊕ New York City; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1912; medical officer in the German Army during World War I; died Aug. 15, aged 65, of carcinoma of the lung.

Gonzalez, Aurelio Andres, Tampa, Fla.; Medical College of the State of South Carolina, Charleston, 1926; died June 13, aged 52, of cerebral hemorrhage and malignant hypertension.

Green, James Henry ⊕ Tupelo, Miss.; Kentucky School of Medicine, Louisville, 1898; affiliated with North Mississippi Community Hospital, where he died July 22, aged 77, of cardiovascular renal disease.

Guterman, Henry Samuel, Chicago; Washington University School of Medicine, St. Louis, 1941; certified by the National Board of Medical Examiners; member of the Endocrine Society; director, department of research in human reproduction at Michael Reese Hospital, where he died Aug. 6, aged 37, of polycystic kidneys.

Hall, Willis ⊕ St. Louis; St. Louis Medical College, 1881; for many years on the faculty of Washington University School of Medicine; an Associate Fellow of the American Medical Association; member of the honorary staff at St. Luke's Hospital; died July 27, aged 96.

Horan, Michael Joseph ⊕ New York City; Medico-Chirurgical College of Philadelphia, 1907; associate clinical professor of surgery at New York Medical College, Flower and Fifth

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⊕ Indicates Member of the American Medical Association.

Avenue Hospitals; associate attending surgeon, Flower and Fifth Avenue Hospital; medical director, House of Calvary Hospital; formerly instructor in surgery at Fordham University College of Medicine; died in St. Vincent's Hospital Aug. 4, aged 75, of myasthenia gravis.

Howe, Julian Menzo ⊕ Washington, D. C.; George Washington University School of Medicine, Washington, 1921; died Aug. 4, aged 57.

Hyde, Harriet Baker, South Harwich, Mass.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900; served on the board of the Cape Cod Hospital in Hyannis; formerly practiced in Greenwich, Conn., where she was a founder of the Greenwich Hospital and where she died Aug. 15, aged 78, of uremia and metastatic adenocarcinoma.

Jacobs, Luster Irvin, Hanna, Okla.; University of Arkansas School of Medicine, Little Rock, 1911; served on the staff of the Henryetta (Okla.) Hospital; died in Henryetta, Okla., Aug. 11, aged 68.

Joslin, Doyle, Yonkers, N. Y.; Harvard Medical School, Boston, 1921; served during World War II; research associate, department of surgery, Cornell University Medical College; died in Agincourt, Ontario, Canada, Aug. 18, aged 58, of coronary thrombosis.

Kerr, Ulysses F., Springfield, Mo.; Barnes Medical College, St. Louis, 1900; county health commissioner from 1924 to 1928; died June 13, aged 84, of coronary sclerosis.

Landau, Benjamin G. ⊕ Surfside, Fla.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; member of the Illinois State Medical Society; died June 10, aged 75, of coronary thrombosis and arteriosclerotic heart disease.

Lewinski, Michael Lewin, Chicago; University of Lemberg, Austria, 1917; died May 16, aged 63.

McGrail, William Chance ⊕ Chicago; Loyola University School of Medicine, Chicago, 1938; served during World War II; on the staff of St. Elizabeth's Hospital; died Aug. 10, aged 43, of coronary occlusion.

McKee, Charles Bradford ⊕ Sacramento, Calif.; George Washington University School of Medicine, Washington, D. C., 1907; died May 29, aged 67, of heart disease and rheumatoid arthritis.

McMahan, Edgar T., Bloomfield, Ky.; Hospital College of Medicine, Louisville, 1898; died July 7, aged 80, of coronary occlusion.

McQueen, Arthur Samuel ⊕ Branford, Conn.; Yale University School of Medicine, New Haven, 1901; in 1918 appointed health officer of the town and borough of Branford and served in this capacity until his death in the New Haven (Conn.) Hospital July 17, aged 79, of cerebral thrombosis, diabetes mellitus, and arteriosclerotic heart disease.

Marsh, Arthur Drought ⊕ Hampton, Conn.; Yale University School of Medicine, New Haven, 1908; served as health officer; died in Bradenton, Fla., recently, aged 66, of cirrhosis of the liver.

Mills, James Fleming, Cincinnati; University of Cincinnati College of Medicine, 1936; served during World War II and was awarded the Distinguished Service Cross; died in the Jewish Hospital Aug. 3, aged 43, of chronic pancreatitis and diabetes mellitus.

Parkin, Edwin Harris, Natick, Mass.; Medico-Chirurgical College of Philadelphia, 1902; died in Boston July 18, aged 77, of cardiovascular arteriosclerosis.

Power, Eugene Logan ⊕ Abbeville, S. C.; University of Virginia Department of Medicine, Charlottesville, 1914; affiliated with Abbeville County Memorial Hospital, where he died Aug. 1, aged 67, of coronary thrombosis.

Presnell, George Rollin ⊕ Kennett, Mo.; St. Louis University School of Medicine, 1937; affiliated with Presnell Hospital in Kennett and St. Mary's Group of Hospitals in St. Louis; died July 31, aged 45.

Quinn, Elwood T. ⊕ Jenkintown, Pa.; College of Physicians and Surgeons, Baltimore, 1910; affiliated with Abington (Pa.) Memorial Hospital, where he died July 28, aged 65.

Risoli, Joseph Edward ⊕ Tewksbury, Mass.; Middlesex University School of Medicine, Waltham, 1943; served as town health officer; affiliated with St. Joseph's and St. John's hospitals in Lowell; died July 30, aged 40, of coronary thrombosis.

Sawyer, Charles Francis ⊕ Twin Falls, Idaho; Northwestern University Medical School, Chicago, 1904; an Associate Fellow of the American Medical Association; member of the Illinois State Medical Society; past president of the Chicago Surgical Society; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; professor emeritus of surgery at Loyola University School of Medicine in Chicago; died Aug. 11, aged 75, of coronary thrombosis.

Schirack, John A., Canton, Ohio; Physio-Medical College of Indiana, Indianapolis, 1894; American Medical College, Indianapolis, 1897; Bennett College of Eclectic Medicine and Surgery, Chicago, 1898; died in Mercy Hospital July 21, aged 92, of arteriosclerotic heart disease.

Schlenker, George Henry, Amherst, Wis.; Chicago College of Medicine and Surgery, 1910; served during World War I; died in the Veterans Administration Hospital in Milwaukee July 8, aged 72, of myelogenous leukemia.

Stahl, Earl J., Charleston, W. Va.; Hospital College of Medicine, Louisville, Ky., 1903; died in Mountain State Memorial Hospital July 23, aged 72, of cerebral hemorrhage, hypertension, and arteriosclerosis.

Stuckman, Edwin D. ⊕ New Paris, Ind.; Medical College of Indiana, Indianapolis, 1895; died in Goshen (Ind.) Hospital July 18, aged 84, of carcinoma of the lower esophagus.

Weber, John Joseph ⊕ Pittsburgh; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1917; affiliated with St. Joseph's Hospital, where he died July 29, aged 61, of cerebral hemorrhage.

Williams, Suel Elsworth, Albuquerque, N. Mex.; Ensworth Medical College, St. Joseph, Mo., 1909; died July 20, aged 73, of cerebral hemorrhage.

Wonderlick, Joseph Anthony, Portland, Ore.; University of Oregon Medical School, Portland, 1923; died July 15, aged 67.

DIED WHILE IN MILITARY SERVICE

Brown, Clarence Raymond ⊕ Lieutenant Colonel, U. S. Army, Tupelo, Miss.; born in Tupelo, Miss., March 27, 1912; University of Tennessee College of Memphis, Tenn., 1937; interned at the John Gaston Hospital in Memphis, Tenn.; served a residency at the Walter Reed General Hospital in Washington, D. C., and the Oliver General Hospital in Augusta, Ga.; entered the medical corps of the U. S. Army as a first lieutenant in 1941; became a lieutenant colonel in 1951; served in Europe during World War II; chief, orthopedic section, Percy Jones Army Hospital in Battle Creek, Mich., where he died July 5, aged 41, of coronary occlusion.

Norris, Joseph Esten, Washington, D. C.; born in Washington, D. C., Dec. 5, 1925; University of Chicago School of Medicine, 1949; lieutenant, medical corps, U. S. Naval Reserve; certified by the National Board of Medical Examiners; a naval internship began at the Naval Hospital in Long Beach, Calif., and was completed at the Naval Hospital in San Diego, Calif.; served as medical officer aboard the U. S. S. Burton Island, with the Second Medical Battalion, Second Marine Division, and reported to the Naval Station, Treasure Island, San Francisco, April 25, 1952, where he was serving at the time of his death in the Naval Hospital, Oakland, Calif., June 12, aged 27.

GOVERNMENT SERVICES

NAVY

Medical and Dental Military Symposium.—The Third Medical and Dental Military Symposium will be held at the U. S. Naval Hospital, Chelsea, Mass., Oct. 12-14. Civilian physicians, dentists, nurses, students, military personnel, and any interested members of the allied professions are cordially invited. Among numerous subjects to be discussed will be treatment of anterior poliomyelitis, role of gamma globulin in anterior poliomyelitis, localization of brain tumors by use of radioactive arsenic, dermatological problems in the service, angiocardiography, peritoneal lavage and the artificial kidney, tumors and malignancies of the oral cavity, advances in inhalation therapy, and psychological and physiological relationships in asthma. In addition to service officers, the speakers have been selected largely from the faculties of medical schools and staffs of prominent hospitals in the area. There will be also sections on nursing and hospital administration. Naval reserve officers not on inactive status may obtain one retirement point credit for each day of attendance. Army and Air Force personnel should make arrangements for point credit with their own services. The wearing of uniform by service personnel other than staff is optional.

Training Courses for Naval Reserve Personnel.—Four training courses for male medical department personnel of the Naval Reserve are scheduled to convene during October, November, and December, 1953. The courses are as follows. 1. Insect and Rodent Control: A class is scheduled to convene at the Naval Air Station, Jacksonville, Fla., on the first and third Wednesday of each month. Quotas have been assigned the 1st, 3rd, 4th, 5th, 6th, 8th, and 9th naval districts. 2. Malariology and Insect Control: The Naval Air Station, Alameda, Calif., has scheduled a course in malariology and insect control for Naval Reservists residing in the 11th, 12th, and 13th naval districts. Information may be obtained from the Commanding Officer, Naval Air Station, Alameda, Calif. 3. Amphibious Medicine: The Naval Amphibious Base, Little Creek, Va., has scheduled a course in amphibious medicine to convene on Oct. 5, 1953. The 1st, 3rd, 4th, 6th, 8th, and 9th naval districts have been assigned quotas for this course. 4. Field Medicine: A course in field medicine is scheduled to be conducted at the Marine Corps Base, Camp Pendleton, California, on Oct. 12, 1953, for reserve personnel of the 11th, 12th, and 13th naval districts.

Eligible personnel desiring to attend these courses in a pay status should submit requests to the commandant of their home naval district at the earliest practicable date. Participation in these courses will not increase the possibility of orders to extended active duty.

Course of Instruction.—A course of instruction in medico-military matters will be conducted at the Naval Medical School, Bethesda, Md., Oct. 12-24, 1953. Reserve Medical, Dental, Medical Service, Nurse, and Hospital Corps officers of the 1st, 3rd, 4th, 5th, 6th, 8th, and 9th naval districts, and the Potomac River Naval Command are eligible to attend. During the first week, the medical department of the Navy, the Navy's medical reserve program, and recent advances in military medicine and surgery, including aviation, submarine, and field medicine, will be discussed. Problems confronting medical and dental officers in chemical, bacterial, and radiological warfare, and recommended defensive techniques, will be discussed during the second week.

Reserve medical department officers desiring to attend should submit requests for 14 days' active training duty to their respective commandants at the earliest practicable date. Acceptance of orders to attend this course will not increase the possibility of call to extended active duty.

DEPARTMENT OF DEFENSE

New Institute of Pathology.—The cornerstone for the new Armed Forces Institute of Pathology building will be laid on Oct. 20 at 10 a. m. at the Walter Reed Army Medical Center. Brig. Gen. Elbert DeCoursey, MC, director of the Institute, will preside at the ceremony, and Dr. Melvin A. Casberg, Assistant Secretary of Defense (Health and Medicine) will be the principal speaker. Completion of the building is expected by late spring, 1954, and construction progress, to date, has been on schedule. The building, which will have five stories above ground and three below, is one of the first institutions in Washington designed for resistance to an A-bomb attack.

Concrete blast walls reinforced with steel enclose the main portion of the building. Except for an administrative wing, the entire structure will be windowless. High intensity lighting will be installed throughout the building. Facilities have been planned for a variety of new activities including laboratories for investigative work in histochemistry, cytophysics, historadiobiology, histobacteriology, and virus and tissue culture. Plans also call for rooms to house animals, an x-ray suite, and closed-circuit color television for teaching purposes.

Architect's drawing of the new Armed Forces Institute of Pathology now nearing completion.

VETERANS ADMINISTRATION

Physicians Wanted at Kerrville, Texas.—Physicians interested in the care of chest diseases are needed at the VA Hospital at Kerrville, Texas, a 450-bed hospital predominantly for the care of tuberculous veterans, located in the hills about 65 miles north of San Antonio. There is an active and progressive inservice educational program for physicians, with nearly every specialty represented in charge of board men. General practitioners are eligible and will be trained if necessary for such positions. The usual VA benefits and perquisites are available, with salaries dependent on qualifications and experience. Inquiries are also solicited from surgeons and eye, ear, nose, and throat specialists.

Personal.—Dr. Rolland R. Gasser, formerly manager of the Veterans Administration Hospital at Framingham, Mass., was appointed manager of the newly remodeled hospital at West Roxbury, Mass., effective August 30. Dr. Gasser will continue as acting manager of the Framingham hospital until the portion of the hospital retained by the Veterans Administration is returned to the Department of the Army. The West Roxbury hospital, formerly a 304-bed general medical and surgical hospital, was closed a little over a year ago for conversion to a paraplegic center. When it is opened, the West Roxbury hospital will have 150 beds devoted to the treatment and care of paraplegic veterans and 150 beds for general medical and surgical patients.

FOREIGN LETTERS

ITALY

Meeting on Internal Medicine.—The eighth convention of the Society of Internal Medicine of the Tuscany and Emilia regions was held in Bologna recently under the chairmanship of Prof. Antonio Gasbarrini, from the university of that city. Prof. Massimo Michelazzi discussed the morphological bases of abnormal circulation. He explained the morphological characteristics of the small vessels and discussed the importance that these may have in the interpretation of many aspects of abnormal circulation. He described the muscle sphincters, the intimal bundles of muscular tissue, and the small polypoid structures found in the small arteries and veins and discussed the arteriovenous anastomoses and the structure and location of the myoepithelioid cells.

Professor Michelazzi spoke also of the general hemodynamic effect of anastomoses, with special reference to the return circulation, and he discussed briefly, as an example of anastomotic circulation, the circulation of the pregnant uterus. Then he reported on the vascular structures of the lung and pointed out the physiological postulates that lead to recognition of the existence of extensive communications between arteries and veins and between the bronchial and pulmonary arterial system. He explained in detail the pathways of the pulmonary circulation and also the various possibilities for and importance of the short circuits from right to left or from left to right. He emphasized the importance of these anatomic features in explaining some aspects of the hemodynamics of the lung, especially in the emphysematous patient, and he discussed a disease that is known in Italy as arteriovenous angiomatosis with hypoxemia. This is a congenital disease due to vascular dysplasia with a particular pulmonary tropism caused by the complex vascular structure of the organ.

On the basis of his personal experience, Professor Michelazzi proved that in bronchitic patients with emphysema some vascular aspects may resemble very closely those of the arteriovenous disease with hypoxemia and could be explained either by the stresses to which the complex pulmonary circulation is subjected or by possible signs of latent vascular dysplasia. On the basis of structural peculiarities, even some aspects of cyanosis could be explained in emphysematous patients as due to a shunt from right to left, and bronchitis due to stasis, pulmonary infarction, and hemorrhages in patients with arterial hypertension could be explained and proved. Prof. Sergio Lenzi, Prof. Luigi Rosa, and Dr. Bardelli read papers after Professor Michelazzi's report.

Roman Society of Surgery.—At a meeting of the Roman Society of Surgery, Feb. 7, under the chairmanship of Professor Paolucci, Dr. Ronchetti reported on a quick method to determine the erythrocyte sedimentation rate. He determined it in patients with tuberculosis and other diseases simultaneously by the method of Westergren and by a quick method by which the reading can be taken after 40 to 60 minutes. The results, which were almost the same with the two methods, suggested the possibility of using the quick method advantageously in the laboratory.

Drs. Parentela and Lucifero spoke of the possibility of a quick treatment of reactions secondary to blood transfusions. They reported their results in 24 patients in whom transfusion or perfusion of fresh whole blood, of a homologous type, was followed by reactions. The reactions disappeared almost entirely a short time after intravenous administration of about 10 cc. of a 25% solution of nikethamide (Coramine).

Dr. Natellis explained a technique for the lyophilization of long arterial segments and demonstrated how he prepared and preserved a 12 cm. segment of aorta. Professor Oselladoro, from Milan, reported on mediastinal goiters and clarified some concepts on the subject. According to him, the term posterior mediastinal goiter that is commonly used is not exact; a definition that would indicate the real location and the true correlations of this pathological entity would be "lateral mediastinal goiter" or better yet "laterovisceral mediastinal goiter." Contrary to modern opinion, the so-called posterior mediastinal goiter is not uncommon. The relations of this goiter to the large vessels of the base of the neck differ fundamentally from those of the anterior mediastinal goiter; the difference is considered with respect to the tracheo-esophageal axis according to which the anterior goiter is previsceral whereas the posterior goiter is lateroviscerał.

The pathogenesis of posterior mediastinal goiter is related not only to its origin in the thyroid gland but also to other circumstances that differ from those presented by previous workers. Its symptoms are always milder than those of an anterior goiter, and they are pulmonary rather than mediastinal. The transpleural approach is the method of choice in removing a posterior goiter. In some cases it is possible and therefore useful to use the cervical approach, whereas in others it is necessary to use both approaches.

Professor Paolucci, a clinical surgeon from the University of Rome, congratulated Professor Oselladoro for his report and for the fact that he reported his personal experience. He said that he agrees with most of his ideas and then gave his report on retrosternal goiters. He operated on 25 patients with this type of goiter and had no mortality.

Center for the Study of Epilepsy.—A center for the study of epilepsy began to function in Bologna on May 1. It was established on the basis of agreements reached between the Cavina Neurosurgical Institute, the Ospedale Maggiore of the city, and the city council of Bologna. Professor Miletti, director of the Cavina Institute, explained the tasks of the center, which are to study epileptics that do not benefit from medical therapy and to ascertain whether better results may be obtained with surgical treatment.

Recent reports by the Cavina Institute have confirmed with statistical data that Jacksonian epilepsy occurring in an adult in good health is in most cases due to a cerebral tumor. To relieve the convulsions of these patients with palliative drugs is a grave mistake, since the diagnosis is delayed until other signs, such as a papilla due to stasis, pareses or paralyses and symptoms of intracranial hypertension, appear. These are all symptoms that jeopardize the results of a neurosurgical intervention.

Less often but not uncommonly generalized epilepsy is also a sign of a cerebral tumor, especially if it appears in young persons or in adults in good health. Moreover, some convulsions are caused by factors that can be removed surgically, i. e., meningocerebral scars due to trauma or to infantile encephalopathy, localized vascular lesions, such as aneurysms and angiomas, and diffuse vascular lesions, such as thrombosis and thromboangiitis obliterans (Buerger's disease). These are favorably influenced by a resection of the cervical sympathetic nerve and can be diagnosed easily by radiological means and arteriography.

Today the electroencephalogram is the most important investigative method for the study of epilepsy; it is possible with this technique to determine whether there is an epileptogenic focus. After this focus has been delimited by means of the electroencephalogram, at operation the focus is located by means of the electrocorticogram. With this technique the focus is clearly delimited and then removed surgically; the results of this treatment are satisfactory.

The epileptogenic foci are found more frequently in the temporal area; the clinical picture of these patients is characterized by psychomotor phenomena with periods of automatic or abnormal behavior. The center of Bologna has two laboratories of electroencephalography and laboratories for chemical-clinical analyses and radiological investigations.

The items in these letters are contributed by regular correspondents in the various foreign countries.

Some Statistical Data.—According to the recent publications of the National Institute of Statistics, stillborn infants in Italy numbered 26,948 in 1951 and 25,924 in 1952. From 1951 to 1952 the number of stillborn infants has increased slightly in seven Italian regions and 35 provinces, while it has decreased in the other 12 regions and 56 provinces.

Statistics about nervous and mental diseases indicate an increase, with more patients hospitalized in public institutions but with a lower fatality rate and a greater number of persons discharged from the institutions. This indicates the improvements that have been achieved in treatment of these diseases. It must be emphasized that in the years following World War II nervous and mental diseases assumed a prominent place in Italy; the greatest number of institutionalized patients was reached in 1950, with a total of 35,428. Statistics for accidents in industrial fields show significant improvement. During 1950 and 1951, 1,066,290 accidents occurred compared to 1,183,410 cases for 1941 and 1942.

LONDON

Postinoculation Poliomyelitis.—In 1950, Dr. Dennis Geffen (*M. Officer* **84:**29 [July 15] 1950) was one of the first to draw attention to the apparent association between inoculation with combined diphtheria-pertussis vaccine and poliomyelitis. He reported 30 cases in a London borough of poliomyelitis developing in children within a month of immunization, the site of paralysis being the site of injection. With his colleagues, he has now (*Lancet* **2:**1268 [June 27] 1953) recorded a follow-up on 29 of these children two years after the original illness. The remaining child could not be traced but "there is no reason to doubt that he is alive." As a control group 23 children of approximately the same age were selected who had poliomyelitis involving the arms at the same time but had not had recent injections.

The interval between the last injection and the onset of poliomyelitis ranged from 5 to 36 days, but doubt is expressed as to whether some of the longer intervals are accurate. In approximately 82% of cases it was from 5 to 16 days. The view is expressed that "taking into consideration the possibility that some mothers have not sought medical advice until such time as illness is acute or paralysis is present, it is probably fair to say that, if a child shows no sign of illness distinguishable by a medical practitioner within two or three weeks of injection, the period of risk has passed." At the time of the follow-up examination 46 (39.7%) of 116 limbs of the 29 inoculated children were involved, while in the control group 49 (53.3%) of 92 limbs were involved. This difference tends to confirm the authors' "clinical impression that the paralysis of post-inoculation poliomyelitis, though severe, was more limited in extent than in comparable uninoculated cases." The initial paralysis was severe or very severe in 39 limbs of the injected children, and in 27 cases (69.2%) remained so two years later; the comparable figure for the control group was 64%. "It therefore seems that the difference in recovery in limbs affected to a more or less equal extent in the inoculated and control group is not of significance."

The type of vaccine used in these children was combined diphtheria-pertussis prophylactic in 19, alum-precipitated toxoid in 8, and pertussis vaccine alone in 2. It is not known whether it was given subcutaneously or intramuscularly. Doubt is expressed as to whether immunization at an earlier age would prove effective in avoiding postinoculation poliomyelitis. Finally, the view is expressed that "it has not been proved that lay publicity on post-inoculation poliomyelitis is the reason for the recent reduction in the number of children immunised against diphtheria," and the authors "believe that the public is entitled to know the facts of the situation."

Fresh data on this subject are provided by J. Grant (*Brit. M. J.* **2:**66 [July 11] 1953), who records an epidemic of 112 cases of poliomyelitis in northeast England last year. Eight of the affected children had recently been inoculated. Details are also given of four similar cases in 1950 and one in 1948. Among all children from 6 months to 2 years old, there were 4 cases of poliomyelitis among those recently inoculated and 13 among those who had not been recently inoculated. This gave an attack rate of 1 in 112 for the inoculated children and 1 in 204 for the others. Dr. Grant comments, "In spite of the smallness of these numbers, I feel that they are reasonable in assessing the risk of a child developing poliomyelitis as being at least doubled as a result of intramuscular immunisation during an epidemic." In the recently inoculated patients, paralysis affected only the inoculated arm in three patients and the inoculated leg in one; it extended from the inoculated arm of a fifth patient to involve the opposite arm and leg. In two patients paralysis was localized to the ocular muscles and to the right leg respectively, although the injection had been given in the left arm. The eighth case was a nonparalytic one. Only 60 of the 130 patients not recently inoculated had paralysis and this much oftener involved the legs than the arms. In the five patients in whom the paralysis was definitely associated with the site of injection, the interval between the injection and the onset of symptoms was 15, 16, 16, 16, and 58 days respectively. In the other three cases in which there was not this association, the interval was 3, 5, and 46 days. In the 1948 and 1950 cases in which the sites of injection and of paralysis were associated, the interval was 10, 13, 13, and 18 days.

Attention is drawn to the fact that, considering all 13 cases of poliomyelitis following recent inoculation, the injection given intramuscularly in the arm on 10 occasions was followed by severe paralysis limited to the arm in five patients, and by extensive paralysis involving both arms in three; all these eight patients "have or are likely to have some degree of permanent disability." On the other hand, in three patients inoculated in the buttocks or thigh, only one had paralysis of the injected limb and it was transient. In view of these observations, and the increased tendency for involvement of the arm to be associated with respiratory paralysis as well as the greater handicap of a paralyzed arm than a paralyzed leg, it is suggested that the lower limb should always be used for intramuscular injections. The prophylactics used in these cases of postinoculation poliomyelitis were diphtheria alum-precipitated toxoid, pertussis alum-precipitated vaccine, and combined diphtheria toxoid and pertussis vaccine.

Attention is drawn to the fact that throughout the epidemic many injections of other substances were given intramuscularly. In only one case, however, was there a possible association with poliomyelitis, one in which injections of penicillin were given to a 6-month-old infant. An appeal is made to manufacturers to produce antigens that will be satisfactory for subcutaneous use.

National Health Service Anniversary.—On the occasion of the fifth anniversary of the National Health Service (the service was inaugurated on July 5, 1948) the Ministry of Health has issued some statistics covering these five years that, apart from their propaganda value, have a certain amount of general interest. They are shown in the following tabulation:

Hospital Service	
Staffed beds (in all hospitals)	470,000 (increase, 35,000)
Nursing and midwifery staff	Whole-time 142,000 (increase, 27,000) Part-time 27,000 (increase, 10,000)
Inpatients discharged	16,000,000
Attendances in outpatient departments	150,000,000
Patients supplied with hearing aids	305,000
Total donations of blood	3,000,000
General Medical Services	
Patients on physicians' lists	42,000,000
General Dental Services	
Courses of treatment provided	43,000,000
Dentures supplied	10,500,000
Ophthalmic Service	
Sight tests given	25,000,000
Pairs of glasses supplied	28,000,000
Pharmaceutical Service	
Prescriptions dispensed	1,002,000,000
Maternity and Child Welfare Clinics	
Attendances of mothers at ante- and postnatal clinics	8,500,000
Attendances of children at child welfare clinics	49,000,000
Domiciliary Midwifery Service	
Cases attended by midwives	1,000,000
Cases attended by maternity nurses	250,000

Fluoridation of Water.—The United Kingdom Mission, which visited the United States and Canada last year, has now published its report on "The Fluoridation of Domestic Water Supplies in North America as a Means of Controlling Dental Caries" (London, Her Majesty's Stationery Office, 1953).

In the opinion of the members of the mission, "Epidemiological studies in America have demonstrated beyond doubt that among children and adults who have been born and brought up in areas where the drinking water contains fluoride at a level of 1 p.p.m. or more, there is much less dental caries than in areas where the water is free from fluoride." Further, "The evidence is conclusive that among children in fluoridation areas there is a reduction in dental caries to a level comparable with that experienced where fluoride occurs naturally." In addition, they found "no scientific evidence that there is any danger to health from the continued consumption of water containing fluoride in low concentration."

They therefore recommend the adoption of fluoridation of water in England as "a useful means of reducing the incidence of dental caries" subject to certain preliminary steps being taken. One is to assess the required dose of fluoride to be added to water supplies in this country. One factor that will need to be taken into consideration here are the different food habits in our two countries. For instance, the amount of drinking water consumed in England may well be less than in the States. On the other hand, however, much more tea is consumed in England, and available evidence indicates that many teas are rich in fluoride and therefore a concentration of 1 ppm is not unusual in a cup of tea. These preliminary measures having been taken, the next proposed step is the addition of fluoride to the water supplies of some selected communities. A further cautious, but wise, note is struck in the statement that "in spite of the fact that the evidence of harmlessness is so strong as to be almost conclusive, research into the effects on health and disease of the continued use of water containing low levels of fluoride should be encouraged."

MEXICO

Seventeen Cases of Intestinal Atresia.—In 65,700 admissions to the Children's Hospital in Mexico City intestinal atresia was diagnosed in 17 cases. In five other cases with a clinical diagnosis of intestinal atresia the diagnosis could not be confirmed because the patients died and an autopsy was not performed.

In the *Boletin del Hospital Infantil* (10:28 [Feb.] 1953) Drs. Sariñana and Delgado reported a study of the first 17 cases, 12 in boys and 5 in girls. Six were born prematurely and 11 at full term. In two cases there was a past history of infectious hepatitis in the mother between the fifth and seventh month of pregnancy. In the others no history of virus infection during the pregnancy of the mother was found.

The time elapsed before admission to the hospital varied between 6 hours and 12 days, and the mortality was directly related to the lapse of time before treatment was started. The symptoms were those of intestinal occlusion and abdominal distention; the presence of peritoneal symptoms was related to the clinical stage in which the patient was seen.

The types and locations of atresia were as follows: in 1 case in the duodenum in the form of a diaphragm; in 3 cases in the jejunum with complete division of the intestine; in 10 cases in the ileum with 3 of these in the form of a diaphragm and 7 with complete separation of the lumen; in 2 cases in the ascending colon, with 1 membranous obstruction in 1 case and several such membranes in the other. Treatment in the cases with a membranous diaphragm consisted of rupture of the diaphragm through an incision in the bowel wall. In the cases with separation of the lumen, laterolateral enterostomy was performed, and gastroenterostomy in the case with duodenal atresia.

Thirteen of the 17 patients operated on died and 4 recovered, a mortality of 74.48%. The high mortality rate of the disease can be improved by early treatment; peritoneal and respiratory infections make the prognosis less favorable. Prematurity and the coexistence of other congenital anomalies, such as mongolism and circulatory defects, are also causes of the high mortality rate in these patients.

Eosinophilia in Infectious Hepatitis.—Viral hepatitis is a common disease in Mexico, and its incidence in this country seems to be increasing, as it is in other countries. At the Hospital de Enfermedades de la Nutrición, which is a rather small hospital, more than 200 cases have been studied in the last six years. One peculiarity of the disease that was sometimes observed was eosinophilia.

In order to determine the incidence of eosinophilia, as well as other leukocytic changes, the hematological data from 100 cases of viral hepatitis were analyzed by Drs. Báez-Villaseñor, Domínguez, Cárdenas, and Tech. Cuéllar. The clinical diagnosis was proved by the liver function tests in all of the cases; in addition, in 35 the diagnosis was confirmed by liver biopsy. Finally in three cases with a fatal result, postmortem studies were carried out.

The results of this investigation were published in the April-June issue of the *Revista de Investigación Clínica* (5:209, 1953). According to this report, a normal white blood cell count was found in 73% of the cases, leukopenia in 19%, and leukocytosis in only 8%. Absolute lymphocytosis was present in 40% and monocytosis, usually slight, in 13%. Eosinophilia occurred in 24% of the cases. The average percentage of eosinophils was 8.5%. It was, to a certain degree, parallel to the state and course of the liver function, and consequently it was suggested that it may have some value for determining the prognosis and clinical course of the disease.

SWEDEN

Treatment of Tuberculous Meningitis.—At a recent meeting of the pediatric and school hygiene section of the Swedish Medical Society, Dr. L. Silverstolpe reviewed the results of the treatment of 20 patients with tuberculous meningitis (16 men and 4 children between the ages of 3 and 11 years) at the Stockholm Fever Hospital during the period 1947-1952. None of the 20 had been vaccinated with BCG. The average observation period for the 11 who survived was over three years. Of nine patients given pure streptomycin in doses of 28 to 59 mg. per kilogram of body weight by intramuscular injection plus 50 to 100 mg. of the same drug by intralumbar injection, five survived. There were two deaths among the three patients given dihydrostreptomycin in doses of 35 to 60 mg. per kilogram of body weight by intramuscular injection plus pure streptomycin, 50 to 100 mg. by intralumbar injection. Combined treatment with *p*-aminosalicylic acid (PAS), 3 to 30 grains (0.2 to 2.0 gm.) daily by mouth, plus dihydrostreptomycin by intramuscular injection, and pure streptomycin by intralumbar injection was given to four patients, two of whom died. Among the three patients treated with isoniazid as well as the two forms of streptomycin, there were no fatalities, but two of the patients were still under treatment.

Reviewing the side-effects of streptomycin treatment among the 11 survivors, Dr. Silverstolpe pointed out that 8 of them showed loss of a caloric reaction. Among these eight were six adults with impaired equilibrium in the dark. Impairment of hearing was observed in five patients, one of whom was a child, while one adult was totally deaf. The side-effects of dihydrostreptomycin were so much more serious than those of pure streptomycin that the former should not be used in cases of tuberculous meningitis. Dr. Silverstolpe has come to the conclusion that an early diagnosis does much to improve the prognosis, since in the eight patients for whom complete recovery could be claimed treatment was begun within an average of eight days after the first manifestations of the disease. Much can be done to aid diagnosis by conducting an early search for acid-fast rods in direct preparations of suspect material. The most recent cases in this group received treatment with isoniazid, given by mouth in doses of 8 mg. per kilogram of body weight, combined with pure streptomycin, given by intramuscular injection in amounts of 50 mg. per kilogram of body weight, plus 100 mg. given by intralumbar injection when the concentration of streptomycin in the cerebrospinal fluid did not reach the desired therapeutic level with intramuscular injections alone.

THE LEISURE CORNER

THE "SUNDAY" PAINTER

Throughout the ages generations of physicians have been art-minded, finding considerable pleasure in attending art exhibitions, collecting paintings, and joining the ranks of amateur painters. The precise relationship between art and medicine has never been defined to the complete satisfaction of all participants in the two spheres of activity. Apparently something more than the mere quest for an outlet to expend excess energy, to escape from the monotony of medical routine, or to move away temporarily from the disconcerting problems associated with clinical practice is required to explain why so many members of the medical profession have for so long turned to the world of art as an avocation.

Some famous physicians of the past have actually put their artistic talents to practical use; for example, Richard Bright and Thomas Hodgkin, discoverers of diseases named after them, illustrated their own medical books and articles, while Joseph Lister, father of modern antiseptic surgery, made his own drawings to illustrate his surgical publications. Others, such as S. Weir Mitchell, the neurologist, and A. Graeme Mitchell, the pediatrician, exhibited talent as painters. Even the ancient Greek physicians were concerned with art. More than 2,300 years ago Hippocrates made a statement that can still serve as a motto for most art critics. Said he, "Life is short, art long . . . judgment difficult."

Perhaps among no other group of professional persons has the enthusiasm for painting been more highly developed or organized than among American physicians. Today thousands of physicians spend their spare time as "Sunday" painters splashing vivid colors on canvas or discovering the absorbing excitement connected with sculpturing, carving, whittling, and hammering out all sorts of art forms. Indeed, many of them belong to the American Physicians Art Association, an organization that holds an exhibition each year at the annual meeting of the American Medical Association.

Physicians have readily turned to art because, like artists everywhere, most of them have a quick eye, possess manual dexterity, and exhibit a keen and sympathetic interest in their environment and in human beings. Most of them, too, could be classified as academic artists, i. e., realists who paint along conventional lines. Now, however, great numbers of physicians will be found to paint in various styles and with various techniques. Some doctors, for instance, regard themselves as impressionists, others experiment with arbitrary postimpressionist arrangements of light and color, and still others follow the teachings of the abstractionist school. Yet it can be fairly stated that within the artistic soul of every amateur doctor-painter is an intense urge to raise or improve the standard of his work to the highest possible level. As in the case of most professional persons, physicians have a limited amount of time for relaxing with an avocation. The truth of the matter is that, unlike the professional painter, the "Sunday" painter need never apologize for his work, for the amateur can do no wrong!

It should be quickly realized that there is no such creature as a typical, standard-model "Sunday" painter; hence there can be no typical standardized approach to the teaching and guidance of amateur artists. To illustrate, the lot of the isolated amateur doctor-painter who resides in a small rural community can hardly be compared in terms of wealth of opportunity with that of his colleague in a metropolis like New York City. In this world center of art the amateur painter can easily attend important exhibitions and within a matter of days be able to compare his sense of critical values with those expressed by prominent art critics writing for the metropolitan press. Moreover, the amateur doctor-painter who lives in a big city is often able to attend art classes that have a substantial gamut of activity, ranging from the lone studio of a favored teacher to the hustle and bustle of a large art class.

Nonetheless, the dyed-in-the-wool "Sunday" painter actually requires neither studio nor absolute quiet or peace to pursue his hobby. He need not wait for "inspiration" or a "worthy" subject, for, as one French proverb has it, "Appetite comes with eating." Art can be found in the humblest pair of shoes, a chair, an apple, or an old vase full of flowers. Painting requires only enough initiative to start painting and enough humility to see beauty in the simplest blade of grass. Painting provides a form of meditation and, incidentally, great fun, since it satisfies the universal desire for self-expression. It would be a mistake to believe that all artists are born and not made. Many persons have secret yearnings for painting, and there is a vast amount of wasted talent in the world because so few persons have investigated the possibilities that can be found in the world of the "Sunday" painter.

In general, a basic problem confronting the doctor-painter is how to pick his way gingerly through a labyrinth of advice, art sources, arty discussions, and courses of instruction. The crucial problem, of course, is to avoid easy formulas for painting, facile tricks, clichés, and, for that matter, unswerving homage to some magnetic teacher's style of painting. The doctor-painter should learn his own capabilities, unhinge his mind from stereotyped thought, rediscover his own personality, and find a satisfactory way to think, feel, and express his own response to the world about him. Whether he realizes it or not, an amateur painter can always be relatively free from the restrictions imposed by academic influences and attitudes, and he can blaze new trails in the forest of experimentation. At all times, he might bear in mind the sagacious comment of André Gide, the eminent French writer and critic: "Be faithful to that which exists nowhere but in yourself—and thus make yourself indispensible."

Of course, the cultivation of a hobby and a new form of interest that will appeal to a physician cannot be improvised swiftly or undertaken in a single day. According to Winston Churchill who is probably the best-known amateur painter in the world (although President Dwight Eisenhower threatens him as a rival), everyone should have a hobby, and "to be really safe, one ought to have at least two or three." During World War I, at the age of 40, he discovered that painting was an inexpensive pastime that could not only completely absorb a person's mind without exhausting his body but also served as a companion with whom it was possible to walk a great part of life's journey. Painting, he found, provides new mental food and exercise, a heightened sense of observation, and a fresh appreciation of the paintings of the masters. As a spur to travel, he found that painting is unequalled. Every section of the country has a theme all its own, with individual lights, scenes, charm, and spirit. Even if the amateur painter cannot portray the world around him as he sees it, he is at least able to feel it, know it, and admire it forever.

"To have reached the age of forty," asserts Churchill, who has three paintings hanging in the Royal Academy, "without ever handling a brush or fiddling with a pencil, to have regarded with mature eye the painting of pictures of any kind as a mystery, to have stood agape before the chalk of the pavement artist, and then suddenly to find oneself plunged in the middle of a new and intense form of interest and action with paints and palettes and canvases, and not to be discouraged by results, is an astonishing and enriching experience."

The possession of paint and brushes is an enemy to boredom, even for those human beings whom Churchill broadly divides into three classes; namely, those who are worried to death, those who are toiled to death, and those who are bored to death. If anyone who reads these words doubts the pleasures and joys that come to the amateur painter and to the perpetual challenge of art, let him purchase a paint box and several brushes, a canvas and an easel, and have these objects at hand. Then: if within a short period of time his fingers do not itch to open the tubes of color, if he cannot make his own experiments and express himself in his own individual way, and if he cannot find endless and ecstatic enjoyment in the inexplicable mysteries of painting, it is reasonable to expect that he will not be suitably disposed to join the increasing ranks of "Sunday" painters.

CORRESPONDENCE

CARBON DIOXIDE INHALATION

To the Editor:—In addition to other aspects, Dr. Temple Fay discussed basic mechanisms of the therapeutic procedure described in his survey "Twenty Per Cent Carbon Dioxide Inhalation in Muscular Rigidity" (*J. A. M. A.* 152:1623 [Aug. 22] 1953). While frankly conjectural as to precise details, he felt that "whatever effect it has must be secondary to some profound change in cellular function, caused either directly or indirectly by the gas itself."

Although various types of metabolic neurodynamic mechanisms are hypothesized, no mention is made of possible psychogenic factors that may explain the improvement "sustained . . . in certain types of disease for periods exceeding three years, when fortified by the appropriate physical therapeutic measures now available." It is pointed out that the therapeutic procedure is of little value in patients in whom relaxation while asleep does not reveal a decrease or disappearance of certain rigidities and tremors. This prerequisite for carbon dioxide therapy in itself suggests the psychic overlay present in some symptoms while the patient is awake.

There exists a considerable amount of literature concerning psychosomatic relations between qualitative or quantitative aspects of symptom manifestations in organic neurological disease, and psychical influence on these symptoms; for instance, H. Flanders Dunbar (Emotions and Bodily Changes, ed. 2, New York, Columbia University Press, 1938) in discussing such relationships, abstracts representative opinions including F. Mohr's, stating that according to the latter "psychophysical interaction can be seen very clearly in many organic diseases of the nervous system. How often, for example, a locomotor ataxia in tabes or multiple sclerosis is followed by a psychically conditioned anxiety which may come to overshadow the organic component . . . [as an example] it was possible, by explanation and reassurance, to restore the ability to walk to a degree sufficient for the patient's calling, whereas previous exercise therapy of long duration had been unsuccessful. It is evident that in this way the somatic disease process also is influenced favorably."

Dr. Dunbar quotes a passage from G. R. Heyer's discussion of hypnotherapy which further illustrates the point: "Thus the inner condition of the whole patient plays an important role for normal, pathological and therapeutic processes—which should be obvious. Attention must be paid to the elaboration of the disease—this is truest of all for organic nervous diseases. All these patients, be they tortured by pain or crippled in their motions, become gradually worn out, discouraged and desperate. Out of all proportion to the severity of their physical symptoms, these patients give up hope. The physician who is only a diagnostician stands ever ready to alleviate symptoms with drugs, even with morphine in increasing doses, whereas encouragement (not appeal to the 'will'), suggestion, and hypnosis occasionally accomplish apparently miraculous improvement, as, for example, in crises, lancinating pain, incontinence alvi et urinae, motor disturbances. In cases of multiple sclerosis, tabes, etc., one is reminded of the command 'take up your bed and walk' when one is able to make paralyzed patients get up from their 'mattress graves.' . . . a patient suffering from spastic spinal paralysis was unable to eat or to hold himself erect. After a few periods of superficial hypnosis—which had to be repeated from time to time—he was able to comb his hair, change his shirt, eat, write, etc. It is unnecessary to point out what relief even improvements of this sort may be to such patients. . . . postencephalitics belong perhaps among the more dreary pictures of nervous illness. Here suggestive-hypnotic treatment is always successful, so that it is difficult to understand why it is applied so rarely."

The basic value of inhalation therapy would lie in: "if the qualities of consciousness and activity could be retained and at the same time the relaxation present during sleep maintained, many benefits would be obtained through corrective therapy." It is more than likely that patients who are responsive to carbon dioxide would be responsive to systematic psychotherapy, as seems to hold true in instances in which the gas is used by some in the treatment of psychiatric patients. Furthermore, psychotherapy obviates the risk of exposing a patient to very real physical dangers described by Dr. Fay under the heading "Contraindications and Precautions Necessary."

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BERYLLIUM POISONING REGISTRY

To the Editor:—A man-made illness of considerable interest has been reported in the medical literature in this country since 1943 under various titles, in general referring to its association with exposure to certain beryllium compounds. As the years go by, more cases appear from a variety of industrial and research operations using beryllium compounds. With funds supplied by the Atomic Energy Commission, it is planned to develop a beryllium case registry at the Massachusetts General Hospital. The purpose of the registry is to facilitate a study of the epidemiology of this disease, an evaluation of the beryllium hazard of incriminated operations, and dissemination of knowledge of the clinical course of beryllium poisoning, especially in relationship to its medical management. The material collected is to be available for study, and from time to time data will be sent to participating physicians summarizing facts that have been established.

This description is being published in the hope that physicians, roentgenologists, and pathologists who have knowledge of cases of beryllium poisoning will participate in making this beryllium case registry complete. We have facilities and funds for prompt handling of any material, such as case records, roentgenograms, and tissue, that is submitted. It is planned to keep cases entered in the registry anonymous. We shall welcome any correspondence.

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SHIPMENT OF PERIODICALS AND BOOKS FOR KOREA

To the Editor:—As a result of the recent appeal published in The Journal, May 30, 1953, page 476, the Alameda Medical Depot on August 1 had received 23 major shipments and numerous small shipments of medical books for trans-shipment to Korea and distribution to Korean medical schools. Services that have books, periodicals, equipment, and other items may ship them to the Commanding Officer, Alameda Medical Depot, Alameda, Calif., marked for KORMEDED, where the Department of the Army will assume responsibility for shipment of the material to Korea for distribution to the Korean medical schools in which they will be of greatest use. Donations of books and periodicals should be limited to those published after 1942. Shipments weighing over 100 lb. but less than a carload, should be shipped via freight (L. C. L. rate) collect. Shipments weighing less than 100 lb. may be shipped via railway express collect. To save expense to the donor, donations should be packed sufficiently to withstand shipment to Alameda only. The Alameda Medical Depot will repack all donations for export to insure safe arrival in Korea.

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COUNCIL ON MEDICAL SERVICE

The Council on Medical Service has completed a study of the organization and operation of 198 county medical society grievance committees. The study is being published in booklet form and is available on request. The following paragraphs contain a brief summary of the data presented in the booklet.

COUNTY MEDICAL SOCIETY GRIEVANCE COMMITTEES

The establishment of improved mechanisms by constituent and component medical societies for adjudicating complaints against physicians is an official recommendation of the American Medical Association. In December, 1949, the House of Delegates adopted a resolution urging that all constituent medical associations establish grievance committees to hear complaints from the public. In 1952, the Council on Medical Service issued a report on grievance committees functioning on a state-wide basis. At that time 36 constituent associations had special committees to handle grievances and 4 states were considering the formation of such committees. By January, 1953, all of the 48 states, the District of Columbia, and Hawaii had formal provision for the hearing of complaints from the public. The 198 societies contributing to this study represent 41% of the 479 societies reporting the existence of some type of grievance committee.

Distribution of Grievance Committees

	Total Societies (Estimated)	Societies Reporting Grievance Committees	Societies Replying	% of Total Reporting
Group 1 (0-14 members).....	1,705*	57	15	26
Group 2 (15-49 members)....		163	60	37
Group 3 (50-99 members)....		91	38	42
Group 4 (100-199 members)..	114	74	36	49
Group 5 (200-299 members)..	42	37	14	38
Group 6 (over 300 members)	71	57	35	61
	1,932	479	198	

* Since the exact number of county societies in each size group is not yet available for 1953, estimated figures are used to show the approximate distribution of the various size societies.

Although previous Council reports have been devoted primarily to state-wide committees, they have also pointed out that "progress made toward attaining a nationwide network of state programs to hear public complaints in no way lessens the importance of similar programs by the local medical societies. . . . Since membership in organized medicine originates in the county medical society, disciplinary action must either originate or end there."

Many complaints are settled more quickly and effectively locally, since a county society committee is usually acquainted with the situation and with the parties involved. A local committee lessens the burden of the state committee and possibly of the complainant and the physician, as well. A local committee may also be effective from a public relations standpoint. The public is more likely to see the service in its true perspective as a self-disciplinary measure by the members of the local medical society. They sometimes object when an outside group is required to police the local society.

A grievance committee as considered here refers to any committee, whatever its title, that receives, and assists in the adjustment of, complaints from the public against individual physicians or the medical profession generally.

Most of the local committees prefer the title "Grievance Committee," although some 50 different titles are now being used. Recently there has been much discussion on the possibility of a more appropriate title than "Grievance Committee." After studying this, however, the Council on Medical Service reported the advisability of continuing the use of this title.

The average local grievance committee began operation in 1949 or after. This action on the part of so many was, no doubt, prompted by the resolution of the House of Delegates, urging the formation of such committees. It should be mentioned that the larger societies are more likely to have a long-standing committee of this type, while the smaller society is likely to have begun its committee within the last five years.

MEMBERSHIP

Local grievance committees do not normally have lay membership. The few reporting such membership usually have two lay members, either elected by the society or appointed by the president of the society. Inclusion of laymen in grievance committees is still in the experimental stage but may serve to strengthen community trust in the impartial attitude of the committee by assuring the representation of the patient's viewpoint. Physician membership ranges from 1 to 90 members; however, the average committee in this study has three physicians, usually appointed by the president of the society. The committee chairman is appointed by the president of the society in most cases.

MEETINGS AND JURISDICTION

Grievance committees generally meet on call, whenever the need arises. Some committees have never met, since they have received no complaints. Because of this arrangement, some societies have questioned the worth of maintaining the committee in formal existence. However, the existence of such a committee is an earnest effort on the part of the society to hear any grievances against society members.

The typical grievance committee handles complaints concerning individual society members, any physician in the county, and the society as a whole. The society has no authority over physicians who are not members, but, as the representative of the medical profession, it finds that interest in resolving disputes between patients and these nonmember physicians is worth while. Complaints from any source, on all phases of medical care, are heard by the committee. In answer to the question about committee authority, arbitration or referral of the complaint to the society's disciplinary body are the extent of the average committee's jurisdiction.

Although some societies argue that the existence of a grievance committee invites trouble from "cranks" and psychopaths, the average grievance committee of the smaller societies receives only one complaint, if any, during the year. Obviously, the larger societies have more complaints because they have more physician members and more patients are served. Fees, inadequate service, and general misunderstandings are the commonest sources of complaint. The committee strives to arrive at a decision satisfactory to both patient and physician.

METHODS OF OPERATION

Various methods of receiving complaints are in operation among the various counties responding, but complaints are usually received in written form only. Unless a direct complaint has been received, the typical committee cannot initiate investigations on its own authority. In most cases society members are requested to answer complaints in writing. Most of the committees prefer to avoid formal arbitration and make every attempt to settle the complaint "out of court." The patient is asked to discuss his grievance with his physician before the committee will consider the case. If the complaint does come before the committee, the parties involved are usually questioned separately. The average society has arrangements whereby committee decisions can be appealed by either the physician or the patient. The most popular board of appeal is the state grievance committee.

Committees usually report on cases at the regular society meetings. Although this is considered the average situation, a number of counties do not report on cases handled. Names of physicians involved in cases are usually omitted in reports to the society as a whole. One committee that reported the names in the society bulletin was instructed by the society to keep this information confidential in the future.

Approximately 61% of the committees have no formal liaison with state grievance committees, and 87% make no reports to state committees. More than 50% of the 175 committees reporting in this category do not routinely refer difficult cases to the state committee for settlement.

PUBLIC RELATIONS

"It pays to advertise," and a "well-informed public" are oft-repeated phrases. In the case of grievance committees, however, most of the societies have confined their publicity to an announcement of the committee's formation. In the great majority of the societies, the names of the members of the committee are not announced to the public. Comparatively few societies report that the public was given complete information on how to use the committee. If the grievance committee were to continue publicity, replies indicate that it would choose the newspapers and the radio as the most effective channels. Despite the fact that one society reports that it receives no cooperation from the local newspapers, the typical committee generally does not receive adverse publicity. Failure to publicize the committee is generally the result of an effort to discourage ill-founded and nuisance complaints.

COMMENT

The information presented in this summary has been condensed from a more detailed Council report in order to present a picture of the average local grievance committee, its organization and operation. Local mechanisms are most important in the larger urban and metropolitan areas, since state committees may well serve to cover effectively the small urban and rural areas. It is most important that the committee functions and procedures be clearly defined for satisfactory operation of the program.

Lack of understanding accounts for many of the complaints received. Physicians do not take time to discuss either the services or the charges. Frequently complaints result from the lack of knowledge that medical care includes other costs, as well as the physician's fee. Today, a doctor's every action reflects not upon himself alone but on the entire medical profession. A certain minimum of police work is necessary to protect the profession's good name. The grievance committee is a protective mechanism for both the public and the medical profession and should be regarded as such. Even when few complaints are received, the committee's existence is valuable in demonstrating the medical profession's willingness to discuss problems of medical care with the public. It is one means of explaining the problems that the public does not understand about the practice of medicine, and it also gives the doctor insight into problems of his patients, about which he may have been unaware. The existence of a grievance committee, empowered to investigate the complaint of a dissatisfied patient, serves to improve professional conduct. Furthermore, public confidence in the profession is strengthened.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Taxes: Deductibility of Expenses of Postgraduate Study.—The petitioner claimed a certain expense to be an allowable deduction from his income tax. The Commissioner of Internal Revenue disallowed the deduction, and the tax court upheld the disallowance on the ground that the expenses were nonbusiness ones "because of the educational and personal nature of the object pursued by the petitioner." The petitioner, therefore, appealed to the United States Court of Appeals, Second Circuit. He had been a member of the bar for many years and in 1944 was admitted to practice before the Treasury Department. In 1946 he was in active practice in Binghamton, N. Y., as a member of a firm of lawyers there. The firm engaged in general practice but did considerable work that required at least one member to be skilled in matters pertaining to federal taxation and to maintain such skill by keeping informed as to changes in the tax laws and the significance of pertinent court decisions when made. His partners relied on the petitioner to keep advised on that subject, and he accepted that responsibility. One of the various ways in which he discharged it was by attending, in the above-mentioned year, the Fifth Annual Institute on Federal Taxation, which was conducted in New York City under the sponsorship of the Division of General Education of New York University. In so doing he incurred expenses for tuition, travel, board, and lodging of $305, which he claimed as an allowable deduction under section 23 (a) (1) (A) I.R.C., as ordinary and necessary expenses incurred in carrying on a trade or business. The Institute on Federal Taxation was not conducted for the benefit of those unversed in the subject of federal taxation, and students were warned away. In 1946, it was attended by 408 attorneys, accountants, trust officers, executives of corporations and the like. In 1947, over 1,500 of such persons from many states were in attendance. The course was "designed by its sponsors to provide a place and atmosphere where practitioners could gather trends, thinking and developments in the field of Federal taxation from experts accomplished in that field."

We may start, said the court, by noticing that the petitioner does not rely on the section of the Internal Revenue Code that permits the deduction of certain nontrade or nonbusiness expenses, but rests entirely on his contention that the deduction he took was allowable as an ordinary and necessary expense incurred in the practice of his profession. The expenses were deductible if they were "directly connected with" or "proximately resulted from" the practice of his profession. And if it were usual for lawyers in practice similar to his to incur such expenses they were "ordinary." They were also "necessary" if appropriate and helpful. But this, the court continued, is an instance emphasizing how dim a line is drawn between expenses that are deductible because incurred in trade or business, i. e., because professional, and those that are nondeductible because personal.

In a prior United States Supreme Court case there is a dictum that the cost of acquiring learning is a personal expense. The issue decided in that case, however, said the court, is far removed from the one involved here. There the taxpayer paid debts for which he was not legally liable whose payment enhanced his reputation for personal integrity and consequently the value of the good will of his business, and it was held that these payments were personal expenses. The general reference to the cost of education as a personal expense was made by way of illustrating the point then under decision, and it related to that knowledge obtained for its own sake as an addition to one's cultural background or for possible use in some work that might be started in the future. There was no indication that an exception is not to be made where the information acquired was needed for use in a lawyer's established practice. This situation, the court continued, is closely akin to a decision of the Court of Appeals where the expenses incurred by a teacher in attending a summer school were held deductible. The only difference is in the degree of necessity that prompted the incurrence of the expenses. The teacher could not retain her position unless she complied with the requirements for the renewal of her teaching certificate; and an optional way to do that, and the one she chose, was to take courses in education at a recognized institute of learning. Here the petitioner did not need a renewal of his license to practice, and it may be assumed that he could have continued as a member of his firm whether or not he kept currently informed as to the law of federal taxation. But he was morally bound to keep so informed and did so, in part, by means of his attendance at this session of the institute. It was a way well adapted to fulfill his professional duty to keep sharp the tools he actually used in his going trade or business. It may be that the knowledge he thus gained incidentally increased his fund of learning in general, and, in that sense, the cost of acquiring it may have been a personal expense, but we think that the immediate, over-all professional need to incur the expenses in order to perform his work with due regard to the current status of the law so overshadows the personal aspect that it is the decisive factor. Even if in its cultural aspect knowledge should for tax purposes be considered in the nature of a capital asset, as was suggested, the rather evanescent character of that for which the petitioner spent his money deprives it of the sort of permanency such a concept embraces.

Accordingly the decision of the Commissioner and the tax court was reversed, and the cause was remanded for the allowance of the claimed deduction. *Coughlin v. Commissioner of Internal Revenue, 203 F. (2d) 307.*

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Dermat. and Syphilol., Chicago

67:541-644 (June) 1953

*Bacillus Anthracis: Observations on In Vitro Sensitivity to Seven Antibiotics with Comment on Therapeutic Implications. W. P. Boger.—p. 541.
Malocclusion and Its Effect Upon Oral Membranes. M. T. Van Studdiford.—p. 546.
Ochronosis. C. W. Laymon.—p. 553.
Dermatological Manifestations of Familial Autonomic Dysfunction (Riley-Day Syndrome). I. J. Mintzer and Z. Rubin.—p. 561.
Stress Dermatoses: Suggested Integration of Allergic-Psychogenic Dermatoses. H. L. Arnold Jr.—p. 566.
*Physiologic Studies in Atopic Dermatitis (Disseminated Neurodermatitis): I. Local Cutaneous Response to Intradermally Injected Acetylcholine and Epinephrine. W. C. Lobitz Jr. and C. J. Campbell.—p. 575.
Erythema Annulare Centrifugum: Its Relation to Internal Disease. A. Stillians.—p. 590.
Cutaneous Papillomatosis: Confluent and Reticulated Variety. A. W. Young Jr—p. 594.
Premalignant Fibroepithelial Tumors of Skin. H. Pinkus.—p. 598.
Occupational Melanosis. A. J. Reiches.—p. 616.
Paradoxical Effect of Penicillin: Epithelioma in Situ Associated with Syphilitic Granuloma. I. N. Holtzman.—p. 622.

Bacillus Anthracis: Sensitivity to Antibiotics.—Special circumstances made available to Roger 29 strains of Bacillus anthracis. Fifteen of the strains had been preserved at 20 C for from 10 to 13 years after their isolation from human infections. The virulence of these strains was established by guinea pig tests. The remaining 14 strains were freshly isolated from human cases of the disease. All of the 29 strains were tested in vitro for susceptibility to seven antibiotics: chlortetracycline (Aureomycin), chloramphenicol, neomycin, penicillin, polymyxin, streptomycin, and oxytetracycline (Terramycin). Uniform sensitivity of all strains to chlortetracycline and oxytetracycline was observed; on the other hand, all were resistant to polymyxin. The greatest variation in sensitivity within these strains was observed with reference to penicillin. The degree of sensitivity of these strains to streptomycin and neomycin was similar, and they may be regarded as moderately sensitive to these two agents. Clinical experience demonstrated that chlortetracycline, chloramphenicol, penicillin, and oxytetracycline are of value in the treatment of cutaneous anthrax, and the laboratory observations of in vitro susceptibility to these antibiotics correlate well with the therapeutic results. It might therefore be predicted on the basis of these laboratory tests that streptomycin and neomycin would prove of value in the treatment of cutaneous anthrax.

Cutaneous Response to Injection of Acetylcholine and Epinephrine in Atopic Dermatitis.—Etiological concepts of atopic dermatitis range from the pure "allergic" to the pure "psychosomatic." A series of physiological studies is being undertaken of the etiological mechanisms involved in the production of this syndrome. When the skin of the normal person is firmly stroked with a pointed (blunt) instrument, there takes place the triple response of Lewis and Grant: (1) red line, (2) flare, and (3) wheal. The "red line" develops in 3 to 15 seconds and is due to dilatation of the capillaries, and is not dependent upon nervous mechanisms. The "flare" (or spreading flush) develops a few seconds after the red line, and is due to an axon-reflex dilatation of the arterioles, and is dependent upon local nervous mechanisms (axon reflex). The "wheal" (or local edema) completely replaces the red line (red reaction), and develops in one to three minutes after injury, is surrounded by the flare, and is due to transudation of fluid from the minute vessels (capillaries) involved previously in the production of the red line (red reaction). Evidence has been presented that a diffusible H substance (or histamine) is responsible for the three reactions. When the skin of the patient with atopic dermatitis is stroked with a pointed instrument, the red line appears in 15 seconds; 5 to 15 seconds later vasoconstriction occurs, producing a blanch that replaces the red line, the well-known white line or "white dermographism." This blanching does not have any whealing component. In studying cutaneous vascular physiology it is important to know what will be the vascular response to adrenergic stimuli (epinephrine) and to cholinergic stimuli (acetylcholine). Observations on 10 patients with atopic dermatitis who received intradermal injection of acetylcholine and epinephrine revealed that the response to epinephrine is the same as that in normal persons, including the production of moderate sweating in the vasoconstrictor zone. The sweat response and axon-reflex response to acetylcholine are normal. However, a marked deviation from normal is evidenced by the "delayed blanch" (vasoconstriction) beyond the injection wheal that occurs between three and five minutes after the intradermal injection. The slowness of onset of the "delayed blanch" and of its spread peripherally, and the lymphatic-like type of spread making pseudopods of vasoconstriction not associated with whealing also suggest that the phenomenon was the result of the direct action of the vasoconstrictor substance on the blood vessels of the skin. Such a vasoconstrictor substance is either (1) acetylcholine itself acting to give a motor response (constrictor) rather than the usual inhibitor response (dilator), or (2) some other vasoconstricting substance which is being released after acetylcholine has been injected. There is no precedent in the literature for the latter supposition, but there is for the former, i. e., acetylcholine can produce a motor (constrictor) response.

A.M.A. Arch. Neurology and Psychiatry, Chicago

69:669-790 (June) 1953

Roentgenological Findings in Tuberous Sclerosis: Bone Manifestations. H. I. Berland.—p. 669.
Language Behavior in Psychoneurotic Patients. M. Lorenz and S. Cobb.—p. 684.
*Prognosis of Neurologic Illness Following Vaccination Against Smallpox. H. G. Miller.—p. 695.
Electroencephalograms of Nonepileptic Psychotic Patients Awake and Asleep. G. Lyketsos, L. Belinson and F. A. Gibbs.—p. 707.
Psychodynamics in Excessive Drinking of Alcohol. J. W. Higgins.—p. 713.
Effect of Mephenesin Upon Anxiety. S. L. Block.—p. 727.
Xanthochromia of Cerebrospinal Fluid. II. Preliminary Description of Several New Colored Substances. R. M. N. Crosby and G. L. Weiland.—p. 732.
Thiamylal in Electroconvulsive Therapy and Significance in Analysis of Seizure Mechanisms. R. S. Green and R. Leiser.—p. 737.
Electroencephalographic Findings Associated with Subdural Hematoma: Review of 45 Cases. E. A. Rodin, R. G. Bickford and H. J. Svien—p. 743.
*Wilson's Disease (Hepatolenticular Disease): Family Study. F. L. Sullivan, H. L. Martin and F. McDowell.—p. 756.

Neurological Illness After Smallpox Vaccination.—Miller reports on 27 cases of neurological illness following smallpox vaccination. In 16 of these the disease was purely encephalitic; 5 were cases of encephalitis with associated signs of involvement of the spinal cord or nerve roots, 3 of transverse myelitis, and 3 of focal cerebral lesions without unequivocal evidence of encephalitis. Death occurred in eight cases within hours or days of the onset of the illness; all these cases were from the encephalitic group. Although residual organic signs of the illness were frequent and included paraplegic, hemiplegic, and

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Titles marked with an asterisk (*) are abstracted.

radicular syndromes, dysarthria, epilepsy, and involuntary movements, in few cases was any serious physical disability found on reexamination after several years, and there were no instances of progressive nervous illness, except one of coincidental postencephalitic Parkinsonism. Psychiatric sequelae were common and oftener disabling. The focal cerebral illness may arise from thrombosis in arteries or veins which are the seat of inflammatory change. As regards the prognostic evaluation of these cases, the author says that they are "selected" to the extent that every surviving patient at some stage received a pension for disability resulting from neurological illness following vaccination. It is possible that cases of similar illness in which recovery occurred without sequelae have been omitted. That the present series may be more representative than this qualification would imply is suggested by figures provided by one of the fighting services at risk during this period. Among 1,750,000 persons vaccinated between 1941 and 1950, 10 had postvaccinal encephalomyelitis (an incidence of 1 in 175,000 vaccinations), with 3 deaths. The mortality is identical with that reported in the present series. If one bears in mind the possible omission of milder cases, the mortality rate in the present series is in keeping with that previously reported. Death occurred in 8 of 27 cases.

Wilson's (Hepatolenticular) Disease.—Two siblings of a family in which five of six siblings in 1931 had been discovered by Curran to have Strümpell-Westphal pseudosclerosis, or progressive hepatolenticular degeneration, were again hospitalized in 1952, and presented Sullivan and associates with the opportunity to study again and to review an unusually large family group with this disorder and to observe the natural history of the disease during a 21-year period. Wilson, in his discussion of hepatolenticular degeneration, noted only one family with more members afflicted, a family of 14 in which 6 members had the disease. He reported only two patients who lived more than 20 years after the onset of symptoms. Recent studies have indicated that even the members of the family with no clinical evidence of hepatolenticular degeneration may show some characteristic biochemical dysfunction, notably a nonspecific aminoaciduria. This paper extends the histories first presented by Curran and describes recent studies of the four remaining members of the family. Five of seven children of this family, including a pair of twins, have had progressive hepatolenticular degeneration. The twins exhibit characteristic low serum copper concentration and ceruloplasmin content, but no such abnormality can be demonstrated in the unaffected members of the family.

American Heart Journal, St. Louis

46:1-160 (July) 1953

Further Studies of Relationship Between Pulmonary Arteriolar Resistance and Pulmonary Artery Pressures. N. O. Fowler Jr.—p. 1.

Duration of Q-U Interval and Its Components in Electrocardiograms of Normal Persons. E. Lepeschkin and B. Surawicz.—p. 9.

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Ventricular Esophageal Electrocardiogram in Diagnosis of Myocardial Infarction. I. L. Rubin, M. P. Margolies, A. Smelin and O. A. Rose.—p. 38.

Latent Wolff-Parkinson-White Syndrome. A. M. Lyle.—p. 49.

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Esophageal Pressure Pulse Patterns (Esophageal Piezocardiogram): III. Mitral Insufficiency. R. P. Lasser, B. S. Epstein and L. Loewe.—p. 84.

*Genetic Studies on Hypercholesteremia: Frequency in Hospital Population and in Families of Hypercholesteremic Index Patients. L. E. Schaefer, S. R. Drachman, A. G. Steinberg and D. Adlersberg.—p. 99.

*Studies in Cardiovascular Syphilis: III. Natural History of Syphilitic Aortic Insufficiency. B. Webster, C. Rich Jr., P. M. Densen and others.—p. 117.

Hypercholesteremia in Hospital Population.—The serum cholesterol level was studied in 250 men and 250 women (consecutive admissions) at the Mount Sinai Hospital in New York. A specimen of venous blood was withdrawn the morning following admission after the patient had fasted for 12 hours. The Schoenheimer and Sperry method was used. Hypercholesteremia was considered to be present when the cholesterol level exceeded 279 mg. per 100 ml. of serum. On this basis 97 patients (41 men and 56 women) were hypercholesteremic, their average age being 52.8 years and the average cholesterol level 348 mg. per 100 ml. of serum. Diseases which are generally associated with hypercholesteremia were found in 22 of these hypercholesteremic patients and they were therefore excluded from further consideration. Thus 75 patients (32 men and 43 women) had idiopathic hypercholesteremia. An analysis was possible of the families of only 59 of these patients. The study included 97 siblings and 110 children who were essentially healthy persons. Hypercholesteremia was found in 51.5% of the siblings and 29.4% of the children. The study was repeated taking into consideration the persons' age, since other authors have found that serum cholesterol levels vary with age. On this basis hypercholesteremia was found in 12% of the 478 patients, 36.2% of the siblings of the 59 hypercholesteremic patients whose families were studied, and 34% of their children. Of the 478 patients 266 were Jewish. Hypercholesteremia was found more frequently among them than among the non-Jewish patients (21% as against 9%). However, hypercholesteremia was as frequent among the siblings and the children of the Jewish patients as among those of the non-Jewish patients. This seems to indicate that environmental factors (different occupations, housing, diet) are not of decisive importance in determining the presence or absence of hypercholesteremia. It seems to suggest that the disease is primarily genetically determined and that the gene leading to a disturbance of the lipid metabolism that manifest itself as hypercholesteremia occurs more frequently among Jewish than non-Jewish persons.

Natural Course of Syphilitic Aortic Insufficiency.—The course of syphilitic aortic insufficiency was investigated for 20 years in 309 patients from the New York Hospital and 711 from the Johns Hopkins Hospital. A diagnosis of aortic insufficiency thought to be due to syphilis had been made in all of these patients. About 70% of those from the first institution and 85% of those from the second were followed throughout the study period or to the time of their death. The long-term prognosis was good; 43% and 33% of the patients survived 10 years and 30% and 20% survived 15 years at the New York and Johns Hopkins hospitals, respectively. The patients who were free of symptoms at the time of diagnosis had a greater survival than those who already had symptoms; 51% of the first group survived 10 years as against 29% of the second group; 58% of patients who never had symptoms survived 10 years, whereas only 25% of the patients who developed them after the diagnosis survived the same period of time from the day of onset. The patient's age at the time of diagnosis had some effect on the survival period but it was never so pronounced as is often thought. The death rate was slightly increased during the first five years of the disease in patients who were under 40 years of age at the time of diagnosis, but thereafter the prognosis was better in these patients than in those who were older when first seen. About 54% of the patients in this age group survived 5 years, 35% 10 years, and 30% 15 years. On the other hand, 42% of patients who were 60 years of age when first seen survived 5 years, 21% 10 years, and 12% 15 years. The effect of race and sex on the prognosis was hard to evaluate; Negro men, however, had a poorer prognosis than Negro women or whites of both sexes. The effect of the patient's type of work could not be investigated thoroughly, but most of the patients had been compelled to heavy physical exertion because of their economic condition. Congestive heart failure and angina were the complications which were found to be significant in this study. Less than 20% of the patients with failure at the time of diagnosis survived 5 years and less than 6% survived 10 years. Those who remained free of failure showed a very low mortality, 56% surviving 15 years. Of those who remained free of angina 29% survived 10 years as against 17% of those who had this symptom. It was not possible to evaluate the effect of treatment prior to or after the time of diagnosis. A total of 632 patients died, 439 among those seen at the Johns Hopkins Hospital and 139 among those seen at the New York Hospital. About 75% of patients in each group died with symptoms of cardiovascular disease. Autopsy was performed in 219 patients and it proved the presence of syphilitic aortic insufficiency in 84.6% and 81.9% of the Johns Hopkins and the New York hospitals patients, respectively. An additional 11.4% had aortitis without demonstrable insufficiency among the New York Hospital group.

American Journal of Medical Sciences, Philadelphia

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Therapeutic Considerations and Controversial Issues in Modern Management of Acute Myocardial Infarction. H. I. Russek.—p. 589.

Observations on Erythrocyte Sedimentation Rate in Congestive Heart Failure. A. E. McGinnis, W. E. Lansche and R. J. Glaser.—p. 599.

Circulatory and Ventilatory Changes in Chronic Rheumatic Heart Disease with Mitral Stenosis. F. D. Gray Jr. and F. G. Gray.—p. 605.

*Use of Quinidine in Chronic Auricular Fibrillation. C. A. Fleischmann. —p. 617.

Weight Reduction: Study of Group Method: Preliminary Report. H. I. Harvey and W. D. Simmons.—p. 623.

Pyrogen-Like Complication of Cardiac Catheterization: Its Pathogenesis. F. A. Hernandez and M. S. Saslaw.—p. 626.

Hemolytic Transfusion Reaction Caused by Anti-c Antibody (With Note on Application of Coombs Test to Crossmatching Procedures). P. G. Frick.—p. 630.

Value of Oral Terramycin in Pre-Operative Preparation of Gut. H. S. Morton, M. I. Riddell and E. G. D. Murray.—p. 636.

Comparison of Results of Treatment of Pneumococcic Infections in Mice with Multiple Doses of Aureomycin and Penicillin Combined Compared with Each Drug Alone. M. H. Lepper, G. G. Jackson, H. F. Dowling and J. Seto.—p. 648.

*Five-Year Follow-Up of 100 Cases of Miliary and Meningeal Tuberculosis Treated with Streptomycin. K. M. Smith.—p. 657.

Epidemic Hemorrhagic Fever. F. W. Pruitt and E. A. Cleve.—p. 660.

Renal Calculi and Uremia as Complications of Lymphoma. A. S. Weisberger and L. Persky.—p. 669.

Possible Relationship of Folic Acid to Uric Acid Metabolism as Exemplified by Case of Non-Tropical Sprue. B. Zumoff.—p. 674.

Aminoaciduria in Childhood: Cystinuria and Cystinosis. W. R. Eberlein. —p. 677.

Heart in Pregnancy: Review of Recent Studies of Cardiovascular Physiology and Heart Disease. A. Rubin.—p. 687.

Use of Quinidine in Chronic Auricular Fibrillation.—Regular sinus rhythm can be reestablished and maintained in many patients with chronic auricular fibrillation by the judicious use of quinidine. The degree of success attained depends to a large extent on the cause of the fibrillation. In a group of 34 patients treated by the authors those with arteriosclerotic heart disease and thyroid heart disease showed the best results. Patients were started on 0.2 gm. of quinidine every two hours for six doses; if sinus rhythm was not restored on this dosage, no further quinidine was given until the following day. Each individual dose was then increased by 0.2 gm. daily until conversion occurred or the dose amounted to 0.8 gm. every two hours. No further attempt was made to reestablish sinus rhythm when fibrillation continued after the maximum dosage was reached. The greatest number of conversions were secured with a dosage of 0.4 gm. every two hours. Reactions severe enough to require discontinuance of the drug were observed in six cases. One patient with mitral stenosis of rheumatic origin and recent hemiplegia from embolization died in her sleep the day after conversion had apparently been secured. The risk of embolization or sudden death is not appreciably increased during quinidine therapy, and any risk involved can be lessened by careful observance of the contraindications to the treatment. Preliminary digitalization, if it can be carried out, will afford protection against a very rapid ventricular rate. Conversion was secured in 24 of the 34 patients; follow-up of 22 of these showed 19 living and 3 dead, two from congestive failure and one from an unknown cause. Sixteen of the 19 survivors had maintained sinus rhythm for periods ranging from 18 months to a few weeks in the case of those treated most recently. Auricular fibrillation in itself produces cardiac dilatation and progressive heart failure in patients with otherwise normal hearts; conversion, which carries little risk and is followed by great improvement in the patient's well-being, should therefore be attempted whenever possible.

Five-Year Follow-Up in Miliary and Meningeal Tuberculosis.—Final survival figures for 100 patients with acute disseminated miliary tuberculosis or tuberculous meningitis or both treated with streptomycin in Veterans Administration hospitals during the year beginning in April, 1946, have now been compiled. Follow-up at the end of two years showed 21 survivors; of these, six have since died, leaving 15 survivors in all at the end of five years. Miliary tuberculosis was followed by meningitis in 13 patients, none of whom was alive at the time of the two-year follow-up. All deaths due to the original miliary or meningeal tuberculosis occurred in the first two and one-half years. Classification of the patients alive and well five years after the completion of treatment showed the following percentages according to the type of disease originally present: (1) miliary tuberculosis: alive, 47%, and well, 37%; (2) miliary tuberculosis and tuberculous meningitis combined: alive and well, 4%; and (3) tuberculous meningitis: alive 12%, and well, 7%.

American Journal of Obstetrics & Gynecology, St. Louis

65:1167-1396 (June) 1953. **Partial Index**

*X-Ray Diagnosis of Uterine Pathology. A. M. Davids.—p. 1167.

Clinical Study of Premenstrual Tension. J. H. Morton, H. Additon, R. G. Addison and others.—p. 1182.

*Syndrome of Testicular Feminization in Male Pseudohermaphrodites. J. McL. Morris.—p. 1192.

Carcinosarcoma of Endometrium. J. Klein.—p. 1212.

An Evaluation of Differential Staining Techniques in Cancer Cytology. B. C. Hopman.—p. 1228.

Squamous-Cell Carcinoma Arising in Benign Cystic Teratoma of Ovary: Report of Three Additional Cases and Review of Literature. R. L. Alznauer.—p. 1238.

Hyperestrinism in Old Women: Report of Case with Cortical and Medullary Hyperplasia of Ovaries and Possible Adrenal Hyperactivity. R. E. Scully.—p. 1248.

Hypopotassemia, as Encountered on Gynecology Service. Gail Gar Lyai Li.—p. 1257.

Dysontogenetic Tumors of Female Lower Genital Tract. R. M. Ruch. —p. 1263.

N-Allylnormorphine: An Antagonist to Neonatal Narcosis Produced by Sedation of Parturient. J. E. Eckenhoff, G. L. Hoffman Jr., and L. W. Funderburg.—p. 1269.

Intrinsic Fetal Mortality of Cesarean Section. H. W. Taylor and E. J. Ward.—p. 1276.

Can We Correctly Assess Cephalopelvic Disproportion? G. F. Gibberd. —p. 1284.

Induction of Labor in Eclampsia. D. D. Friedman.—p. 1293.

Postnatal Growth and Development of Infants Born After Diethylstilbestrol Administration During Pregnancy. E. M. Canario, G. Houston and C. A. Smith.—p. 1298.

Marginal Insertion of Cord and Premature Labor. S. Brody and D. A. Frenkel.—p. 1305.

Thirty-Seven-Year Survey of Ectopic Pregnancy: 266 Consecutive Cases Without Mortality. B. Leff.—p. 1313.

Pregnancy Following Major Thoracic Surgery for Tuberculosis. C. E. Folsome and C. D. Kuntze.—p. 1319.

Concurrent Association of Trichomonas Vaginalis, Filiform Bacillus of Döderlein and Syringospora in Pregnancy. L. G. Feo.—p. 1330.

Delivery of Quadriplegic Patient Confined to Respirator. D. E. Nilsson. —p. 1334.

X-Ray Diagnosis of Uterine Disorders.—Hysterosalpingography has not come into general use, because of the complications and fatalities caused by the iodized oils. With the discovery of aqueous radiopaque mediums for use in excretory urography a safe material presented itself for hysterosalpingography. Davids states that at the gynecological service of Mount Sinai Hospital, in New York, over 3,000 hysterosalpingograms have been made with relatively few complications. The patient is placed in a lithotomy position on a table equipped with a Bucky diaphragm. After a preliminary film of the abdomen and the pelvis a bivalve speculum is inserted into the vagina and the cervix is exposed and painted with an antiseptic. The anterior lip of the cervix is grasped with a tenaculum and a sound introduced into the uterine cavity to note its direction and depth. The iodized material is injected into the cervical canal by a syringe attached to an insufflation cannula equipped with a rubber acorn tip. Occlusion of the external cervical os is obtained by pressure with the acorn tip. Opaque material is injected slowly and films are taken after the injection of 1, 2, or 4 cc. of the dye. A film in the oblique position, taken after the last injection, facilitates the demonstration of lesions on the posterior uterine wall which might otherwise escape detection. The method is contraindicated in acute and subacute pelvic inflammatory disease, intrauterine gestation, cervicitis with purulent discharge, and uterine bleeding. The following conditions have been demonstrated by hysterography: endometrial polyps, submucous and intramural fibroids, hyperplastic endometrium, adenomyosis, fundal carcinoma, tuberculous endometritis, congenital anomalies of uterine cervix and fundus, cervical strictures, chronic endocervicitis, and pregnancy and retained secundines. Extravasation of opaque medium into the uterine and pelvic vascular system occurred in 2% of the patients. Since the medium is water soluble, there was no untoward reaction. It is only when large amounts of the opaque medium are employed for outlining the uterine tubes that pain results owing to spill into the peritoneal cavity or owing to distention of the uterus and tubes under pressure. Embolization and granulomas do not occur, since there is rapid absorption of the water-soluble dyes. Allergic phenomena occurred in very rare instances and were easily controlled. Pelvic inflammatory reactions occurred only when a subacute or chronic salpingitis was reactivated.

Testicular Feminization in Male Pseudohermaphrodites.—Morris discusses a clinically recognizable syndrome found in patients who are essentially normal-appearing women, but who have undescended testes in place of ovaries. These patients are actually male pseudohermaphrodites, but the term "pseudohermaphroditism" usually connotes congenital abnormalities of the external genitals resulting in confusion of the sex. The patients under discussion are of a typical feminine appearance with secondary sex characteristics and show female external genitals. Frequently the patients have been married with marital satisfaction, and no complaint except of sterility. Morris presents the histories of two cases, one observed in a Massachusetts hospital and the other in Stockholm, Sweden. He lists the following as the most significant features of such cases: 1. Female habitus, breast development, and other secondary sex characteristics. 2. Scanty or absent axillary or pubic hair in most cases. 3. Female external genitals, with a tendency to underdevelopment of labia, and a blind-ending vagina. 4. Absence of internal genitals except for rudimentary anlage and for gonads which may be located intra-abdominally or along the course of the inguinal canal. 5. Gonads histologically consistent with undescended testes. 6. Urinary excretion studies suggest that such testes produce estrogen and androgen. Elevated urinary gonadotropins have also been found. From the psychosexual aspect these patients are definitely female. As in all intersexes, there seems to be an unusually high incidence of psychosis and suicide, especially when the patient has commenced to suspect that she is abnormal. Owing to the role of these gonads in producing female development, it would seem justifiable to leave them in place until such development has occurred. If seen during puberty it might be worth while providing supplementary estrogen to see if more complete feminization could be obtained such as development of the vulva and production of pubic hair, and to see if the stature and build could be made more typically female by earlier epiphyseal closure. After adolescence surgical removal appears advisable to avoid the very real danger of neoplasia. In addition to adenomas and cysts there were seven malignant tumors in the 82 cases collected.

American Journal of Ophthalmology, Chicago

36:765-894 (June [Part 1]) 1953. Partial Index

Surgical Correction of Blepharoptosis. R. N. Berke.—p. 765.
Uptake of Radioactive Phosphorus by Normal and Neoplastic Ocular Tissues. E. B. Dunphy and B. Selverstone.—p. 774.
Effect of Hyaluronidase on Therapeutic Efficacy of BAL Applied to Rabbit Cornea. C. Harris and B. S. Cohen.—p. 777.
Curare Akinesia in Cataract Operations. J. W. Henderson.—p. 781.
Present Technique and Results of Use of Curare in Ocular Surgery. J. I. Barraquer. Moner.—p. 789.
Examination of Cornea with Phase-Contrast Microscope. J. Francois and M. Rabaey.—p. 799.
Clinico-Pathology of Ocular Foreign Bodies. B. A. Roberts and A. Schlossman.—p. 803.
Technique of Corneal Transplantation. L. Daily Jr. and R. K. Daily.—p. 813.
New Surgical Approach to Myopia. T. Sato, K. Akiyama and H. Shibata.—p. 823.
Anomalous Projection: Its Incidence, Factors in Development, Characteristics, Tests, and Treatment of 146 Surgically Treated Strabismus Cases. N. S. Jaffe.—p. 829.

American Journal of Public Health, New York

43:523-664 (May) 1953. Partial Index

Importance of Food in Preventive Medicine. C. A. Elvehjem.—p. 523.
*Studies of Bathing Water Quality and Health. A. H. Stevenson.—p. 529.
Brucellosis, Diabetes, and Liver Deficiency. A. P. Leon and N. Aguirre.—p. 539.
Study of Follow-Up of Poliomyelitis Patients. H. M. Wallace, P. Heely, M. A. Losty and H. Rich.—p. 542.
Public Health Aspects of Electronic Food Sterilization. J. T. R. Nickerson, B. E. Proctor and S. A. Goldblith.—p. 554.
Development of Cardiac Control Program in Georgia. J. G. Barrow.—p. 572.
Domiciliary Medical Care and Voluntary Teaching Hospital. H. J. Bakst.—p. 589.
Teachers' Health—Findings and Recommendations. R. Zindwer.—p. 609.

Bathing Water Quality and Health.—A series of field studies were undertaken to determine the relationship between natural bathing water quality and its effect upon the health of the bather. The aims were to determine what relative increase in illness incidence might be expected from swimming in the cleanest waters and in water containing various degrees of bacterial pollution. Consideration was not given to the less tangible aspects of outdoor swimming, such as fresh air, mental relaxation, moderate amounts of sunshine, physical exercise, etc. The locations were Lake Michigan at Chicago, Ill., the Ohio River at Dayton, Ky., and a nearby swimming pool in the same area; and Long Island Sound at New Rochelle and Mamaroneck, N. Y. The studies demonstrated that an appreciably higher over-all illness incidence may be expected in the swimming group over that in the nonswimming group regardless of the bathing water quality. Eye, ear, nose, and throat ailments may be expected to represent more than half of the over-all illness incidence, gastrointestinal disturbance up to one-fifth, and skin irritations and other illnesses the balance. Specific correlation between illness incidence and bathing in waters of a particular bacterial quality was observed in two instances. This evidence should not be taken as conclusive, however, since a complete analysis of the effect that weather might have had on the result was not possible, but the apparent relation between illness and bacterial quality does provide a warning signal. Despite the relatively low incidence of gastrointestinal disturbance, swimming in river water having a median coliform density of 2,700 per 100 ml. appears to have caused a significant increase in such illnesses among the swimmers. Admitting the difficulties of conducting studies in which nature rather than man controls many of the variables, sufficient evidence is available to indicate that some of the strictest bacterial quality requirements for natural bathing water now existent might be relaxed without significant detrimental effect on the health of the bathers.

43:665-820 (June) 1953. Partial Index

*Occurrence of Histoplasmosis in Epidemics—Epidemiological Studies. J. T. Grayston and M. L. Furcolow.—p. 665.
Appraisal of Water-Borne Fluoride—Dental Caries Relationship. F. S. McKay.—p. 700.
Some Reflections on Epidemiology of Fluorine and Dental Health. H. T. Dean.—p. 704.
Antigenic Fractions of Histoplasma Capsulatum. C. C. Campbell.—p. 712.
Age Relationship of Cases of Pulmonary Tuberculosis and Their Associates. A. B. Robins.—p. 718.
Control of Tuberculosis in Chile, 1952. H. Romero and J. Vildosola.—p. 724.
Diarrheal Diseases in Fresno County, California. J. Watt, A. C. Hollister Jr., M. D. Beck and E. C. Hemphill.—p. 728.
Saskatchewan Experience in Payment for Hospital Care. F. B. Roth, G. W. Myers, F. D. Mott and L. S. Rosenfeld.—p. 752.
United Mine Workers of America Welfare and Retirement Fund Medical Care Probram. W. F. Draper.—p. 757.

Epidemics of Histoplasmosis.—This report is based on 13 epidemic outbreaks of histoplasmosis. Grayston and his coworkers find that with the exception of the generalized variety, histoplasmosis is predominantly a pulmonary infection. The theory that the usual mode of infection is by inhalation gains support from the nature of the disease and from the apparent mode of infection in this series of epidemics. In many of the epidemics it was found that exposure to dust created by agitation of material proved to contain Histoplasma spores resulted, after from one to three weeks, in illness associated with numerous discrete pulmonary infiltrations. A correlation between the number of the lesions and the severity of the illness on the one hand and the length and intensity of the dusty exposure on the other was established both between epidemics and within a given epidemic. The x-ray picture of numerous discrete pulmonary infiltrations would appear to represent numerous primary lesions caused by inhalation of a large number of spores with their deposition in many alveoli. The frequent association with animal excreta is of interest. The excreta probably merely contributed to a good growth condition rather than indicating an animal carrier. The involvement of wood as a vehicle of infection in four of the epidemics further emphasizes its position as possibly important to the growth of Histoplasma in nature. Infections with histoplasmosis contracted in laboratories indicate that infection with Histoplasma, whether of clinical significance or not, provides resistance to reinfection. The findings in 12 of the 13 epidemics are consistent with this view.

American Journal of Surgery, New York

86:1-124 (July) 1953

Freeze-Dried Aortic Grafts: Preliminary Report of Experimental Evaluation. J. W. Pate and P. N. Sawyer.—p. 3.

Analysis of Anesthetic Safeguards: Report of National Survey. H. W. Schweizer and P. M. Wood.—p. 14.

Cardiac Arrhythmias During Anesthesia: Comparison of Cyclopropane and Pentothal-Nitrous Oxide-Ether Anesthesia. J. L. Eisaman, H. D. Caylor, C. E. Jackson and H. Roe.—p. 23.

*Emergency Infracostal Approach for Cardiac Arrest. D. J. Wexler, F. Bromberg and A. Kohn.—p. 29.

Pheochromocytoma. J. L. DeCourcy.—p. 37.

Nephrectomy and Hypertension: Experience in One Urologic Clinic. S. J. Okulicz and V. F. Marshall.—p. 45.

New Method of Estimating Blood Loss During Surgery. F. Cole.—p. 50.

Rhinoplasty: Psychogenic Adjunct in Treatment of Vasomotor Rhinitis. L. W. Eisenstodt.—p. 53.

Neurosurgical Procedures for Relief of Intractable Pain. S. W. Gross.—p. 58.

Peripheral Nerve Surgery: Incisions for Exposures of Peripheral Nerves. C. Pollard Jr. and E. G. Grantham.—p. 61.

*Regional Enteritis: Results of Surgical Treatment. L. T. Palumbo and S. C. Wittmer.—p. 70.

Mesentericoparietal Hernia: Report of Three Cases. R. C. Giles, E. Del Beccaro, W. Klingensmith and H. Trace.—p. 75.

Painful Scars. R. J. Behan.—p. 81.

Emergency Infracostal Approach in Cardiac Arrest.—The high mortality in cases of cardiac arrest is due to delay on the part of the anesthetist in making the diagnosis and on the part of the surgeon in acting after the condition has been called to his attention. Minutes or even seconds may mean the difference between life and death. When cardiac arrest occurs during the course of an open chest operation, massage of the heart presents no great problem. It is in surgery elsewhere in the body that the problem of the quickest and most adequate emergency approach to the heart arises. Apart from the thoracic approach, the best known methods involve opening the peritoneum through a median epigastric incision and massaging the heart through the intact diaphragm, and when necessary, opening the diaphragm for more adequate exposure. The authors describe and illustrate with diagrams the infracostal approach for manual massage of the heart in cardiac arrest, and discuss the adjuvant measures useful in cardiac resuscitation. This emergency may arise in any surgical intervention. The infracostal approach, once learned, can be used with little hesitation by those unaccustomed to working in the thoracic or abdominal cavities. The method involves entering the chest through a left subcostal incision which allows access to the heart through a natural plane of cleavage lying posterior to the posterior rectus sheath and transversus abdominis muscle, and anterior to the peritoneum adjacent to the xiphisternal junction. Brief reports of the nine cases of cardiac arrest which occurred at the Southside Hospital, New York, in the past four years are presented, together with the plan of action which has been developed.

Regional Enteritis: Surgical Treatment.—The disease process of regional enteritis, which has been described also under such terms as regional ileitis, terminal ileitis, chronic cicatrizing enteritis, segmental enteritis, nonspecific granuloma of the intestine, chronic ulcerative ileitis, Crohn's disease, chronic enteritis, ileocolitis and pseudocancer, is nonspecific and the etiology is still obscure. It may involve any segment of the small bowel and/or the right half of the colon. The disease progresses through several stages. In the advanced stages a one-stage resection of the portions of bowel involved and an ileotransverse colostomy appears to be the treatment of choice. In poor risk patients and/or in those cases in which the disease process cannot be resected with safety, a short-circuiting operation consisting of complete ileal exclusion with an ileotransverse colostomy is the procedure of choice. It is suggested that this condition, as well as ulcerative colitis, nonspecific granuloma of the colon and peptic ulcer, may be initiated by an imbalance of portions of the autonomic nervous system. Upon this basis the favorable effects of vagotomy as reported by several clinicians may be explained. The authors are of the opinion that a right vagus resection inferior to the origin of the gastric branches, a bilateral splanchnicectomy, a lower dorsal and upper lumbar sympathectomy, and an excision of the left presacral parasympathetics would be a more logical procedure. Sixteen cases of regional ileitis are presented. In the early stages of the disease an appendectomy was performed in four patients during the acute episode. In the advanced group an ileal exclusion with an ileotransverse colostomy was performed in half of the patients, and in the others a one-stage resection of the diseased small bowel and right colon with an end-to-end ileotransverse colostomy was accomplished. There were no deaths and no recurrences.

Annals of Surgery, Philadelphia

137:781-926 (June) 1953

Splenic Cysts with Report of Case of Large Unilocular Cyst of Rapid Growth. R. P. Bell Jr.—p. 781.

Massive Resection of Liver. J. K. Quattlebaum.—p. 787.

*Fibrosis of Sphincter of Oddi. R. B. Cattell and B. P. Colcock.—p. 797.

Benign Neoplasms of Extrahepatic Bile Ducts: Case Report of Cyst Causing Obstruction. R. O. Lyday.—p. 807.

Primary Carcinoma of Third Portion of Duodenum. D. H. Poer.—p. 813.

Annular Pancreas Producing Duodenal Obstruction. H. Wilson and J. H. Bushart.—p. 818.

Relation Between Internal Jugular Vein Pressure and Cerebrospinal Fluid Pressure in Operation of Radical Neck Dissection. H. P. Royster.—p. 826.

Tissue Reactions to Tantalum Gauze and Stainless Steel Gauze: An Experimental Comparison. A. R. Koontz and R. C. Kimberly.—p. 833.

*Fifteen-Year to Forty-Year Survival Rates Following Radical Mastectomy for Cancer of Breast. S. W. Harrington.—p. 843.

Subaxillary Incision for Radical Mastectomy. W. F. MacFee.—p. 850.

Surgical Experience with Mammary Cancer: Growth Characteristics Observed During Treatment of 258 Private Patients with Breast Cancer. J. V. Goode and J. A. Martin.—p. 856.

Certain Preventable Errors in the Diagnosis and Management of Carcinoma of Stomach and Lung. F. F. Boyce.—p. 864.

Vagotomy and Gastro-Enterostomy—Vagotomy and Conservative Gastrectomy: Comparative Study. L. W. Edwards and J. L. Herrington Jr.—p. 873.

Improvement of 180 Per Cent in Five-Year Survival Rate of Patients with Carcinoma of Stomach. W. Walters and J. Berkson.—p. 884.

Relation of Gastric Ulcer to Carcinoma of Stomach. S. F. Marshall.—p. 891.

Gastric Ulcer and Gastric Cancer. I. S. Ravdin and R. C. Horn Jr.—p. 904.

Contact Splints (Eggers) Vs. Standard Bone Plates in Fixation of Experimental Fractures. J. A. Key and F. C. Reynolds.—p. 911.

Fibrosis of Sphincter of Oddi.—Cattell and Colcock of the Lahey Clinic point out that fibrosis of the sphincter of Oddi may be responsible for some of the symptoms in patients with cholelithiasis. It can best be demonstrated during exploration of the common duct. It may be overlooked unless exploration of the common bile duct is employed frequently during operations for cholelithiasis. At the Lahey Clinic exploration of the common bile duct is done in slightly less than half of all patients operated on for cholelithiasis, and approximately 20% of patients are found to have stones in the common bile duct. This high rate of exploration of the common duct has led to the discovery of an appreciable number of obstructions at the ampulla of Vater. The following methods are available as aids to the discovery of obstruction to the lower end of the common duct: (1) manometric pressure studies, (2) cholangiography, (3) operative exploration of the common bile duct, and (4) transduodenal exploration. Unrecognized fibrosis of the sphincter or stricture of the papilla may be responsible for recurrence or persistence of symptoms following cholecystectomy and may necessitate a secondary operation. The authors analyze observations on 49 patients with fibrosis of the sphincter or stricture of the papilla. These patients were selected after a careful study of the histories of a much larger group in whom the possibility of fibrosis was considered. Those cases in which the diagnosis was not substantiated, was indefinite or was questioned by the operating surgeon were excluded. The symptoms encountered in this selected group included all of those commonly associated with calculi in the biliary tract. The most conspicuous clinical feature was the occurrence of intermittent attacks of severe, right upper quadrant or upper abdominal pain, with the typical radiation to the back and to the shoulder. These attacks were frequently associated with anorexia, nausea, and vomiting. Forty-two of the 49 patients complained of these attacks. Twenty-seven patients gave a history of intermittent or persisting jaundice following the attacks of abdominal pain. Seven patients gave a history of chills and fever. With the demonstration of fibrosis of the sphincter, the operative procedures carried out in these 49 cases were as follows: forcible dilatation of the sphincter was performed in 35 patients, and in these a long T tube was inserted. Transduodenal sphincterotomy was performed in 10, and in each of these the long T tube was utilized. Dilatation of the sphincter with implantation of a short T tube was carried out in three patients. In one patient, choledochoduodenostomy was performed since a previous subtotal gastrectomy had been carried out. There was no operative mortality. Only two subsequent deaths have occurred, one a year later from chronic relapsing pancreatitis and pancreatolithiasis, and the second from carcinoma of the common duct. Complete relief of symptoms was obtained in 90% of the cases.

Survival Following Mastectomy.—Statistical studies were made on women on whom a radical mastectomy was performed at the Mayo Clinic for carcinoma of the breast from 1910 through 1934, with compiling of 15 to 40 year survival rates. Harrington was interested in determining certain factors that influence the prognosis as shown by the survival rates following operation. The prognosis of carcinoma of the breast following radical mastectomy appears related to many different factors, some of the more important of which are (1) the extent of the malignant involvement at the time of operation, (2) the degree of malignancy as shown by microscopic examination of the primary lesion, (3) the presence of other associated conditions such as pregnancy and lactation, (4) the general constitutional diseases such as diabetes, and (5) the age of the patient. The author knows of no method of determining what the prognosis will be in any individual case. Many patients have obtained the opinion that they are "cured" of malignant disease if, on examination five years after operation, no evidence of the malignant disease is found. A study of long term survival rates shows that local recurrence or metastatic lesions may occur 15 or more years after the operation. The cases available for the first tabulation numbered 4,637 patients with unilateral carcinoma of the breast on whom radical mastectomy was performed in 1934 or earlier; of these 4,563 (98.4%) were traced. Of patients traced for the respective number of years, 1,144 (25.1%) survived 15 or more years, 624 (17.6%) survived 20 or more years, 301 (12.6%) survived 25 or more years, 128 (9.3%) survived 30 or more years and 35 (6.9%) survived 35 to 40 qears. Of the 4,563 traced patients, 2,918 (63.9%) were found to have axillary nodal metastasis at the time of operation and 1,645 (36.1%) did not reveal nodal metastasis. Of the 2,918 who had axillary nodal metastasis, 351 (12.0%) lived 15 or more years, and of the 1,645 without axillary nodal metastasis, 793 (48.2%) lived 15 or more years. The author concludes that studies on long term survival rates following radical mastectomy for carcinoma of the breast show that it is impossible to determine definitely the prognosis in an individual case either before or at the time of the operation, and that patients with unilateral high grade malignant growths with metastasis as well as patients who develop a malignant growth in the remaining breast with metastasis subsequently may survive many years following operation.

Arch. of Physical Medicine & Rehabilitation, Chicago

34:411-458 (July) 1953

Work Program for the Disabled Housewife. E. L. Kristeller.—p. 411.
Assistive Activities for the Custodial Type Patient. H. Hoberman and E. F. Cicenia.—p. 418.
*Temperatures Produced in Bone by Various Methods Used in Ultrasonic Therapy: An Experimental Study. L. F. Bender, J. F. Herrick and F. H. Krusen.—p. 424.

Temperatures Produced in Bone by Ultrasonic Therapy.—The femurs of anesthetized adult dogs were exposed to ultrasonic energy by various techniques of application. In one technique, the source of ultrasound was held stationary and the energy was either continuous or pulsed; in another technique, the source of ultrasound was moved back and forth over the desired area using only continuous energy. The temperatures of the cortex and marrow of the femur were measured by means of thermocouples. Extremely high temperatures were produced when the sound head was stationary and the energy was continuous. Pulsed energy provided a means of controlling the rise in temperature rather well. Stroking application of the continuously emitted ultrasonic energy provided the best control of the heating effect with the widest margin of safety. Ultrasound is used extensively in some European clinics, but since early investigations at the Mayo Clinic showed that dangerously high temperatures may be produced in the bones of experimental animals during short exposures to ultrasonic therapy, it was imperative to learn how to control these high temperatures before the therapeutic use of ultrasound could be considered.

Arizona Medicine, Phoenix

10:215-246 (June) 1953

Tumors of Mediastinum. D. State.—p. 218.
Treatment of Common Forms of Arthritis. L. M. Locie.—p. 221.

10:247-278 (July) 1953

Large Spontaneous Gastrocolic Fistula Due to Carcinoma of Transverse Colon. H. P. Limbacher.—p. 247.
Evaluation of Modern Drug Therapy. L. M. Lockie.—p. 249.

Blood, New York

8:587-678 (July) 1953

Electron Microscopic Studies of Action of Thrombin on Blood Platelets. E. De Robertis, P. Paseyro and M. Reissig.—p. 587.
*Hemophilia-Like Disease Following Pregnancy with Transplacental Transfer of an Acquired Circulating Anticoagulant. P. G. Frick.—p. 598.
Hemolytic Disease of the Newborn Infant Caused by Maternal Sensitization to Blood Factor hr (c): Report of Two Cases with Special Reference to the Etiologic Significance of Multiple Blood Transfusions in Rh Positive Women Prior to Gestation. J. Grundorfer.—p. 609.
Hemolytic Disease of the Newborn Due to Anti-A. H. Crawford, M. Cutbush and P. L. Mollison.—p. 620.
Immunologic Specificity of Antiserum for Trypsin-Treated Red Blood Cells and Its Reactions with Normal and Hemolytic Anemia Cells. M. C. Dodd, C.-S. Wright, J. A. Baxter and others.—p. 640.
Life Span of Marmot Erythrocyte. K. C. Brace.—p. 648.
Production of Nucleophagocytosis by Rabbit Antileukocytic Serum. H. J. Zimmerman, J. R. Walsh and P. Heller.—p. 651.
Effect of a Series of Ethylenimine Derivatives on Myeloid Chloroleukemia in the Rat. S. J. Sparks, M. L. Stevens, M. J. Landes and others. —p. 655.
Bone Marrow Aspiration in the Monkey (Macacus Rhesus). B. S. Cohen. —p. 661.
Case Report: Paroxysmal Nocturnal Hemoglobinuria with Development of Aplastic Anemia. M. G. Nelson and J. H. Bruce.—p. 664.

Hemophilia-like Disease Following Pregnancy.—In a woman, aged 24, who had been in good health until August, 1949, a large hematoma developed over the right elbow after a minor trauma. One week later a painful hematoma appeared over the dorsum of her left foot. This was evacuated by her physician. The incision did not heal promptly because of continuous bloody oozing for three weeks. Several superficial and deep hemorrhages occurred in all extremities. The patient had given birth to a normal male infant three months before the onset of the present illness. There was no unusual immediate postpartum hemorrhage, but she had some vaginal blood loss for about one month. About three months after the onset of the disease, the patient had a partial clinical remission up to the time of her second pregnancy, which seemed to take a normal course until two weeks before the expected term, when gross hematuria developed, as well as extensive subcutaneous hemorrhages. A male infant, weighing 4,100 gm., was delivered on Nov. 6, 1950. From the second day after the delivery the patient bled for 41 days more or less profusely from vagina, necessitating transfusion of 89 units of blood (500 cc. each) in addition to 15 units of fresh serum. Administration of corticotropin and of stilbestrol had no effect on the hemorrhagic tendency. The patient underwent x-ray sterilization one week after cessation of the protracted hemorrhage. The failure of the fresh blood to influence the patient's coagulation mechanism led to the suspicion of a circulating anticoagulant, which was demonstrated by the direct method of Conley. This anticoagulant probably inhibited the antihemophilic globulin. The anticoagulant was demonstrated in the patient's second child during the first two and one-half months of life. The transplacental transfer of the anticoagulant and the similarity of this condition to hemophilia (resistant to therapy) following iso-immunization against antihemophilic globulin strongly suggest that an immunologic mechanism accounts for this abnormality. The patient recovered 18 months after her second delivery and 16 months after x-ray sterilization. The possible relation of the recovery to the sterilization remains unknown.

California Medicine, San Francisco

79:1-72 (July) 1953

Gamma Globulin: Status of Availability for Prevention of Poliomyelitis. W. L. Halverson and R. M. Drake.—p. 1.

The Growing Problem of Suicide. R. A. Kern.—p. 6.

Differential Diagnosis of Operable Disease of Esophagus. B. B. Roe.—p. 11.

Diseases and Deaths: A Statistical Survey of 40,130 Autopsies at the Los Angeles County General Hospital, 1918 to 1948—Part II. E. Bogen, O. View and E. M. Butt.—p. 16.

Injuries of Musculotendinous Cuff of Shoulder. D. W. Blanche.—p. 20.

Biological Warfare. J. Beeston.—p. 25.

Attitudes Toward Specific Therapies. G. G. Jampolsky.—p. 29.

Psychiatric Contraindications to Pregnancy with Reference to Therapeutic Abortion and Sterilization. J. M. Kummer.—p. 31.

Exercise Test in Electrocardiography: Detection of Coronary Artery Disease. M. F. Leeds and S. S. Kroopf.—p. 36.

Palm Thorn Injuries: Difficulty in Diagnosis of Late Sequelae. L. Cozen and M. Fonda.—p. 40.

The Prognosis in Cataract Operations: A Correlation of Preoperative Appraisal with Results. W. A. Pettit.—p. 42.

Delaware State Medical Journal, Wilmington

25:127-148 (June) 1953

Dermatology and the Chiropodist. R. Friedman.—p. 127.

Role of Chiropodist in Diabetes. A. Sindoni Jr.—p. 132.

Some Unorthodox Views on Atherosclerosis. O. J. Pollak.—p. 138.

Endocrinology, Springfield, Ill.

52:611-730 (June) 1953. **Partial Index**

Bioassay of Gluco-Corticoid Activity by Mouse Glycogen Method: Some New Facts. J. A. Nissim.—p. 611.

Method of Assay of Sodium-Retaining Factor in Human Urine. B. Singer and E. H. Venning.—p. 623.

*Comparison of Effects of Cortisone Administered Intraperitoneally and Subcutaneously in Rat. F. S. Greenspan, H. Gifford and Q. B. Deming.—p. 638.

Effect of Prolonged Local Treatment with Adrenocortical and Sex Steroids on Intradermal Spreading Action of Hyaluronidase. M. A. Hayes.—p. 646.

Effect of Hypophysectomy on Regeneration of Liver After Partial Hepatectomy in Dogs. T. M. Astarabadi, H. E. Essex and J. H. Grindlay.—p. 652.

Studies on Rates of Involution and Reconstitution of Lymphatic Tissue. J. A. Frank, L. F. Kumagai and T. F. Dougherty.—p. 656.

Chemical Transformation of Steroids by Adrenal Perfusion: Perfusion Methods. O. Hechter, R. P. Jacobsen, V. Schenker and others.—p. 679.

Thyroid Stimulating Hormone of Anterior Pituitary as Distinct from Exophthalmos Producing Substance. B. M. Dobyns and S. L. Steelman.—p. 705.

Comparison of Effects of Cortisone Administered Intraperitoneally and Subcutaneously.—Greenspan and associates administered cortisone acetate intraperitoneally and subcutaneously to adult male and female rats in doses of 1.25 to 3.75 mg. daily for periods of 40 to 48 days. Subcutaneously administered cortisone acetate produced the expected loss in body weight, and atrophy of the thymus and adrenal cortex. The same dosage of cortisone acetate intraperitoneally did not cause weight loss and produced no atrophy of the adrenals or of the thymus. The duration of the effect of a single dose of cortisone was then studied by following the urine output of rats which had been subjected to adrenalectomy and a daily water load. It was found that the intraperitoneal administration of cortisone acetate had an immediate and rapid effect on the restoration of water diuresis in these rats, whereas the subcutaneous administration of cortisone acetate had a slower and more prolonged effect. The data suggest that certain effects of cortisone acetate, such as weight loss and atrophy of thymus and adrenal cortex, may require a sustained corticoid level, as may be produced by subcutaneous administration of the drug. Other metabolic effects, such as the restoration of water diuresis in rats deprived of their adrenals and subjected to water tolerance tests, occur rapidly following intraperitoneal administration of cortisone acetate, but, perhaps because of the shorter duration of the effective corticoid level, there is no inhibition of growth or production of adrenal atrophy.

Florida Medical Association Journal, Jacksonville

40:1-72 (July) 1953

Ocular Neuroses. G. T. Gwathmey.—p. 15.

Are Speeding, Open Sirens and Red Light-Breaking by Ambulances Necessary? L. L. Parks.—p. 20.

Detection and Management of Retrolental Fibroplasia: Plan for Average Hospital and Staff. C. D. Benton Jr.—p. 23.

*Sarcoidosis of Myocardium: Report of Case. L. M. Sales.—p. 27.

Sprains and Strains Treated with Ultrafaradic M-4 Impulse Generator. G. R. Crisler.—p. 32.

Sarcoidosis of Myocardium.—Sales reports a case of Boeck's sarcoid involving the myocardium, which brings to 18 the number of cases reported in the literature. The important data on the 18 cases are presented. The author's patient, a man, aged 20, was hospitalized on Aug. 9, 1948, complaining of abdominal distention, cough, productive of minimal amounts of white, frothy sputum, episodes of nocturnal dyspnea or orthopnea, and weakness of 1½ months' duration. Intermittent pedal edema was first noticed about two weeks prior to admission. Thereafter, the patient had mild anorexia and some febrile episodes. There was a 10 lb. (4.5 kg.) weight loss in one month. The patient gave a history of acute iritis in 1947 while in service in Korea, at which time a lymph node biopsy revealed Boeck's sarcoid. He denied venereal disease. He had episodes when his joints became hot, swollen and tender, the knee and ankle joints being those mostly involved. There was sinus tachycardia, and roentgenography of the chest revealed that the cardiac silhouette was enlarged in the transverse diameter, showing accentuation of the left auricular curve and increased rounding of the apex. A moderate degree of hypervascularity was present in the hilar region and at both bases. Both hands presented areas of osteolysis in several fingers. An electrocardiogram showed myocardial damage. The patient was kept semiambulant, and the temperature was normal. On the morning of the ninth day after admission, he complained of dyspnea and was advised to stay at bed rest. Shortly before noon, he had a sudden episode of severe dyspnea with coughing, productive of a cupful of blood. The dyspnea continued to increase, and he was placed in an oxygen tent at absolute rest. Rapid digitalization was carried out. About 2 p. m. complete vascular collapse occurred, from which the patient did not recover despite supportive measures. He died on the morning of the following day. A postmortem examination revealed chronic myocarditis (infiltration by sarcoidosis of Boeck), Boeck's sarcoidosis of tracheobronchial lymph nodes, passive congestion of lungs, and focal necrosis of liver. The consensus among authors, who have investigated this subject, is that death in cardiac involvement by sarcoidosis is usually due to extensive infiltration of the myocardium, with resultant fibrosis and cardiac failure.

Journal of Clinical Investigation, New York

32:459-616 (June) 1953. Partial Index

Effects of Aging, Arteriosclerosis, and Hypertension Upon Cerebral Circulation. H. A. Shenkin, P. Novak, B. Goluboff and others.—p. 459.
Colorimetric Determination of Serum Cholinesterase: Its Value in Hepatic and Biliary Tract Diseases. M. H. Sleisenger, T. P. Almy, H. Gilder and G. Perle.—p. 466.
Studies on Proteolytic Enzyme in Human Plasma: IX. Fibrinogen and Fibrin as Substrates for Proteolytic Enzyme of Plasma. O. D. Ratnoff.—p. 473.
Action of Hydrocortisone in Synovial Inflammation. R. A. Jessar, M. A. Ganzell and C. Ragan.—p. 480.
Chloride, Bromide, Sodium, and Sucrose Spaces in Man. J. L. Gamble Jr., J. S. Robertson, C. A. Hannigan and others.—p. 483.
Pulmonary Physiology of Normal Individuals Living at Altitude of One Mile. L. L. Anderson, M. L. Willcox, J. Sillman and S. G. Blount Jr.—p. 490.
Studies in Phosphorus Metabolism in Man: III. Distribution, Exchange and Excretion of Phosphorus in Man Using Radioactive Phosphorus (P^{32}) as Tracer. S. M. Levenson, M. A. Adams, H. Rosen and F. H. L. Taylor.—p. 497.
Pulmonary Function in Mitral Valvular Disease: Distribution and Diffusion Characteristics in Resting Patients. D. Carroll, J. E. Cohn and R. L. Riley.—p. 510.
Effect of Portacaval Shunt on Estimated Hepatic Blood Flow and Oxygen Uptake in Cirrhosis. S. E. Bradley, C. M. Smythe, H. F. Fitzpatrick and others.—p. 526.

32:617-690 (July) 1953

Lobar Alveolar Gas Concentrations: Effect of Body Position. C. J. Martin, F. Cline Jr. and H. Marshall.—p. 617.
Effects of Carbonic Anhydrase Inhibitor "6063" on Electrolytes and Acid-Base Balance in Two Normal Subjects and Two Patients with Respiratory Acidosis. J. Nadell.—p. 622.
*Studies on Prevention of Rheumatic Fever: Effect of Time of Initiation of Treatment of Streptococcal Infections on Immune Response of Host. L. L. Brock and A. C. Siegel.—p. 630.
Depressor Effects of Potassium-Deficient Diets in Hypertensive Man. G. A. Perera.—p. 633 .
Characteristics of Thoracic Duct Lymph in Man. H. R. Bierman, R. L. Byron Jr., K. H. Kelly and others.—p. 637.
Studies in Intravascular Coagulation: II. Comparison of Effect of Dicumarol and Heparin on Clot Formation in Isolated Venous Segments. S. Wessler.—p. 650.
Effects of 1-Hydrazinophthalazine on Cerebral Blood Flow, Vascular Resistance, Oxygen Uptake and Jugular Oxygen Tension in Hypertensive Subjects. J. H. Hafkenschiel and C. K. Friedland.—p. 655.
Quantitative Fractionation of Component Proteins of Human Serum with Cationic Detergents. R. F. Jacox.—p. 661.
Peptidases in Human Serum: Comparison of Activities Between Normal Persons and Patients with Liver Diseases and Other Pathologic Conditions. G. A. Fleisher and H. R. Butt.—p. 674.
Erythematogenous Action of Ultraviolet Light on Human Skin: I. Some Measurements of Spectral Response with Continuous and Intermittent Light. P. B. Rottier.—p. 681.

Prevention of Rheumatic Fever: Immune Response in Streptococcic Infections.—Penicillin treatment of acute streptococcic pharyngitis results in a marked suppression of antibody formation. Studies were made on patients fulfilling the following criteria: the presence of exudative pharyngitis, history of onset of symptoms less than 31 hours before admission, and subsequent isolation of group A streptococci from the initial throat culture. Patients with a past history of rheumatic fever or chorea were excluded. A throat culture and a serum specimen were obtained from each patient at the time of admission and on the 14th, 21st, and 28th days from the onset of symptoms. Bacteriological and serological studies were performed. Antistreptolysis "O" titers were determined on all serums from each patient, and all tests were performed with the same lot of streptolysin and read by the same observer. Each of the 349 patients studied was assigned to one of four treatment groups according to a random sequence previously determined by a shuffled deck of cards. It was found that there is a correlation between the time of institution of penicillin therapy and the degree of suppression of antistreptolysin formation: the earlier the treatment the greater the suppression. Therapy, begun not later than 31 hours after the onset of symptoms of streptococcic pharyngitis, reduces the subsequent antistreptolysin response at 21 days by approximately 60%, while therapy begun five days after the onset of symptoms results in a 40% suppression. These observations support the hypothesis that the antigenic challenge during acute streptococcic pharyngitis occurs gradually, over a period of several days, and that an appreciable percentage of the total immune response develops as a result of antigen formed after the fifth day of disease. It is difficult to relate these data to the over-all problem of the prevention of rheumatic fever, since the present study was too limited to yield any direct evidence as to the effectiveness of delayed penicillin therapy in reducing the attack rate for this complication. It has been shown that there is a correlation between high convalescent antibody titers following streptococcal infections and the development of rheumatic fever. It would thus seem that early therapy of streptococcic infections would be advisable; delayed therapy, however, might exert some effect on the incidence of rheumatic fever.

Journal of Experimental Medicine, New York

98:1-98 (July) 1953. Partial Index

Mechanism of Action of Cortisone in Experimental Hypersensitivity: Hypersensitivity of Serum Sickness Type. F. G. Germuth Jr.—p. 1.
Histological Study of Infectious Canine Hepatitis by Means of Fluorescent Antibody. D. L. Coffin, A. H. Coons and V. J. Cabasso.—p. 13.
Morphologic Variation in Pneumococcus. R. Austrian.—p. 21.
Experimental Production of Combination Forms of Virus: I. Occurrence of Combination Forms After Simultaneous Inoculation of Allantoic Sac with Two Distinct Strains of Influenza Virus. G. K. Hirst and T. Gotlieb.—p. 41.
Chronic Sodium Chloride Toxicity in Albino Rat: II. Occurrence of Hypertension and of Syndrome of Edema and Renal Failure. G. R. Meneely, R. G. Tucker, W. J. Darby and S. H. Auerbach.—p. 71.

Journal of Infectious Diseases, Chicago

92:205-302 (May-June) 1953. Partial Index

Recovery of Human Enteric Pathogens on Meat from Butcher Shops in Cairo, Egypt. T. M. Floyd, J. R. Baranski and M. El-Gannani.—p. 224.
Activation of Pseudotuberculosis in Mice Exposed to Sublethal Total Body Radiation. I. L. Shechmeister and F. L. Adler.—p. 228.
Histopathology of Murine Pneumonitis Infection and Growth of Virus in Mouse Lung. F. M. Gogolak.—p. 254.
Chemotherapy of Experimental Plague in Primate Host. F. R. McCrumb Jr., A. Larson and K. F. Meyer.—p. 273.
I^{131}-Labeled Antigen Precipitation as Measure of Quantity and Quality of Antibody. D. W. Talmage and P. H. Maurer.—p. 288.

New England Journal of Medicine, Boston

248:1037-1080 (June 18) 1953

Twentieth-Century Changes in Treatment of Septic Infections. A. Fleming.—p. 1037.
Mortality of Persons with Photofluorograms Suggestive of Cardiovascular Disease. G. W. Comstock.—p. 1045.
Oral Cortisone Treatment of Infantile Eczema. L. W. Hill.—p. 1051.
*Sources of Upper Gastrointestinal Hemorrhage in Cirrhotic Patients with Esophageal Varices. E. D. Palmer and I. B. Brick.—p. 1057.
*Malignant Thymoma in Myasthenia Gravis: Report of Unusual Case with Brief Discussion of Role of Thymus in Disease. J. H. Katz.—p. 1059.
Balthazar-Foster Murmur and Foster's Rule. A. Kerr Jr. and E. D. Palmer.—p. 1064.

Gastrointestinal Hemorrhage in Patients with Esophageal Varices.—Studies were made on 150 patients; cirrhosis had been proved in 146 by needle biopsy, in 1 by peritoneoscopic biopsy, and in 3 by necropsy. There were 134 cases of portal cirrhosis, 12 of postnecrotic cirrhosis, and 4 of cirrhosis due to infection with Schistosoma mansoni. Esophagoscopy revealed esophageal varices in 95. There was a history of serious hemorrhage from the upper gastrointestinal tract in 59 patients, 47 of whom were found to have esophageal varices. Among 91 patients without a history of hemorrhage, there were 48 cases of esophageal varices. Thirty-nine per cent of the patients with a history of hemorrhage had one or more lesions of the upper gastrointestinal tract in addition to varices that could have been responsible for the hemorrhage; 20% had other potential bleeding sites. Other lesions were associated in 22% of the 95 patients with varices. Duodenal ulcer was the commonest disease accompanying varices, having been found in 10% of all patients. Gastric ulcer, hiatus hernia, and esophagitis were each demonstrated in 7 cases. Twenty-one patients died during investigation, and all were studied at autopsy. Hemorrhage was the cause of death in 11 of the 21 fatalities, and in 7 of the 11 cases the hemorrhage originated in the esophageal varices. Two patients died of hemorrhage from acute erosive gastritis, one of hemorrhage from duodenal ulcer and one of hemorrhage from leukemic infiltration of the stomach. These observations imply that when a cirrhotic patient presents himself with a massive hemorrhage, esophageal varices are not necessarily the cause. Endoscopic and radiological studies of the upper gastrointestinal tract should be carried out in each cirrhotic patient.

Malignant Thymoma in Myasthenia Gravis.—The case presented is that of a man, aged 43, in whom a diagnosis of myasthenia gravis had been made in 1949. Roentgenograms of the chest revealed a tumor mass, which on needle biopsy proved to be a metastatic transitional cell carcinoma of the pleura. The patient received 2,400 r to the upper chest, and after this improved and was well regulated with 4 neostigmine (prostigmin) tablets (15 mg.) daily. In September, 1950, the symptoms returned, and he received an additional 6,000 r to the chest. He again improved, although he had to increase his neostigmine dosage to 7 tablets a day. In the spring of 1951 the patient suffered another relapse. Another physician confirmed the diagnosis of myasthenia gravis and increased the neostigmine dose to 20 tablets daily. Thymectomy was considered, but since roentgenograms of the chest indicated a widespread malignant neoplasm, plans for thymectomy were abandoned and the patient was given a third course of x-ray therapy. In December, the patient was readmitted to the hospital in acute respiratory distress, for which he was placed in a respirator. On a regime of frequent oral and subcutaneous administration of neostigmine, he steadily improved, and at discharge two months later was able to get along without a respirator. In July he was readmitted to the hospital because of sudden inability to swallow and breathe. He became progressively weaker despite massive doses of neostigmine and octamethylpyrophosphoramid. On Sept. 17, he became increasingly cyanotic and died. Autopsy revealed a malignant thymoma, with involvement of the mediastinum, right pleura, parietal pericardium, chest wall, diaphragm and peritoneum, and radiation fibrosis of the pleura and pericardium. Much confusion was caused in this case, because biopsy of an axillary lymph node had revealed neoplastic tissue. For a time the possibility that the mediastinal mass seen by x-ray represented an independent bronchiogenic carcinoma was considered, since malignant thymomas have never been known to undergo lymphatic metastasis. The autopsy demonstrated that the "metastasis" in the axilla actually was due to erosion of the chest wall by direct extension. The involvement of the peritoneum by extension through the diaphragm is unusual. Thymus glands are found normal in about 85% of cases of myasthenia. The exact mechanism by which this disease is produced remains unclear, but there is evidence that a humoral factor interferes with transmission of the nerve impulse across the neuromuscular junction. The possible relation of this to intracellular electrolyte abnormalities and to the therapeutic use of corticotropin is discussed.

Pediatrics, Springfield, Ill.

11:569-668 (June) 1953

Serum Complement in Children with "Collagen Diseases." R. J. P. Wedgwood and C. A. Janeway.—p. 569.

*Funnel Chest: Indications for Surgery and Time of Choice for Operation. A. H. Bill Jr.—p. 582.

Ovarian Maturation and Cyst Formation in Children. D. W. Polhemus. —p. 588.

*Studies of Natural History of Herpes Simplex Infections. G. J. Buddingh, D. I. Schrum, J. C. Lanier and D. J. Guidry.—p. 595.

Treatment of Enterobiasis (Pinworm Infestation) with Diphenan,® Egressin® and Gentian Violet. R. C. Jung and P. C. Beaver.—p. 611.

Congenital Fibromyxosarcoma of Os Calcis. J. J. Slavens.—p. 617.

Thalassemia in Negroes: Report of Case of Cooley's Anemia in Negro Child. L. O. Banks and R. B. Scott.—p. 622.

Incidence of Hypertension in Poliomyelitis. M. A. Perlstein, M. B. Andelman, D. C. Rosner and P. Wehrle.—p. 628.

Hearing Test for Newborn Infants. J. B. Richmond, H. J. Grossman and S. L. Lustman.—p. 634.

Funnel Chest: Indications and Time for Operation.—The authors sent a questionnaire as to the fate of adult patients with untreated funnel chest to a group of physicians and surgeons with wide experience in diseases of the chest. The questionnaire asked what proportion of patients with severe degree of funnel chest develop cardiac, pulmonary, or psychological disability, whether the life span of such patients is shortened, and whether operative repair in childhood should be advised. Twenty-five questionnaires were answered completely enough to be useful. The majority felt that among adult patients with severe funnel chest there are some who suffer from cardiac or respiratory disability. There was a feeling that many of these patients undergo psychological trauma. Twenty-three of the 25 physicians feel that operative correction of a severe degree of funnel chest should be undertaken in childhood. Observations on eight patients operated upon by the author are reviewed. Most operations recommended in the past are modifications of the procedures described by Brown. The first, which he calls "simple" and recommends for infants, is that of freeing the inner surface of the lower portion of the sternum from its posterior attachments. The second procedure, which had been described by Garnier, consists of the removal of the backward-projecting segments of the lower costal cartilages together with the performance of a wedge osteotomy across the upper sternum to permit the sternum to come forward. Varying modifications of this latter operation include resuturing the rib ends to the sternum, with use of a transplanted-bone strut to hold the sternum forward and various methods of traction. In two infants, 6 and 10 months of age, respectively, the author used the "simple" technique of Brown and little improvement resulted. In six other patients the more radical technique was used and the results were satisfactory in the five who were between 2 and 6 years old, whereas in a boy of 15, the correction of the deformity was incomplete. The author recommends in severe cases of funnel chest radical surgical treatment when the child is between 2 and 6 years old.

Herpes Simplex Infections.—Primary herpetic gingivostomatitis has come to be recognized as one of the common infectious diseases of childhood. The virus of herpes simplex was first implicated as the etiological agent in 1938 by Dodd, Johnston and Buddingh. Buddingh and associates review studies pursued during the course of several years in the pediatric clinics and wards of Vanderbilt University Hospital. The virus of herpes simplex was isolated and identified and the specific serologic response to primary infection was demonstrated in 52 children ranging from 1 to 3 years of age. These cases provided the material required for the development of techniques and methods. In a detailed study of 12 patients the virus was recovered from the mouth and stools during the acute stage, convalescence, and for varying periods thereafter. The average time during which virus could be recovered from these sources was 23 days after the onset of the disease. Virus could not be recovered from the blood or spinal fluid, but patients were not available for study before the third day of the disease. Neutralizing antibodies to herpes simplex were first demonstrated in the serum from the fourth to seventh day of the disease. The antibodies attained a maximum level during the second or third week. The maximum antibody concentration was not maintained and dropped to relatively low levels over varying periods. Herpes simplex virus was recovered from the mouths of persons presenting no clinical evidence of herpetic infection; it was recovered from 7% of 571 normal individuals of various ages; from one infant out of 97 under 6 months of age, from 20% of 72 children of 7 months to 2 years, from 9% of 199 children 3 to 14 years of age, and from 2.5% of 185 adults. Neutralizing antibodies were demonstrated in the serum of 43% of white and 71.4% of Negro children in the 7 month to 2 year age group. In adults 90% of white and 96% of Negro individuals had antibodies to herpes in the serum. Natural active immunity appears to be established at an earlier age in the segments of the population in which the highest carrier rate was demonstrated. Neutralizing antibodies were demonstrated in the serum of 76% of white infants and in 90% of Negro infants 6 months of age and under. The placental transmission of neutralizing antibodies was demonstrated. Approximately the same level of antibody was found in the maternal and placental serums.

Psychosomatic Medicine, New York

15:187-278 (May-June) 1953. **Partial Index**

Emotional Reactions of Rheumatoid Arthritics to ACTH. J. T. McLaughlin, R. N. Zabarenko, P. B. Diana and B. Quinn.—p. 187.

Dynamically-Oriented Brief Psychotherapy: Psychocutaneous Excoriation Syndromes. An Experiment. P. F. D. Seitz.—p. 200.

Experiences in Group Psychotherapy with the Obese. B. Kotov.—p. 243.

Psychotherapy of Hospitalized Orthopedic Patient. J. M. Perman and J. Rapoport.—p. 252.

Quarterly J. Studies on Alcohol, New Haven, Conn.

14:165-362 (June) 1953. Partial Index

*Blood Alcohol Concentrations Resulting from Wine Drinking Timed According to Dietary Habits of Italians. E. Serianni, M. Cannizzaro and A. Mariani.—p. 165.
Sugar, Pyruvate and Acetaldehyde Levels in Blood of Alcohol Addicts After Ingestion of Dextrose. A. Varela, A. Penna, F. Alcaino G. and others.—p. 174.
First Drinking Experience of Addictive and of "Normal" Drinkers. A. D. Ullman.—p. 181.
Disulfiram as Sedative in Alcoholism. F. Lemere.—p. 197.
Pathological Intoxication, Alcoholic Hallucinosis, and Other Reactions to Alcohol: Clinical Study. P. R. A. May and F. G. Ebaugh.—p. 200.
On "Therapeutic" Success in Alcoholism. G. Lolli.—p. 238.

Blood Alcohol Concentrations in Relation to Time of Wine Drinking.—Experiments were conducted on medical students in good health and ranging in age between 23 and 26 years. The wine had an ethyl alcohol content of 11% by volume. The amount given in each experiment corresponded to 0.5 cc. of ethyl alcohol per kilogram of body weight. The meal given provided 1,898 calories. When wine was given with or after meals, lower blood alcohol concentrations were observed than when it was given on an empty stomach. The effect of a meal on blood alcohol concentrations lasted about four hours. When wine was taken on an empty stomach in three or in six doses, the peak of the blood alcohol curve appeared later than when it was given in a single dose. When wine was given in three or in six doses during a meal, the resulting blood alcohol curves were definitely lower than those that follow similar ingestion of wine on an empty stomach. The peak of the curve following the drinking of wine on a full stomach appeared earlier than when taken on an empty stomach. This earlier appearance of the maximum blood alcohol concentration seems to indicate that retarded absorption cannot explain the lowering of the blood alcohol curve induced by a meal ingested before the administration of the alcoholic beverage. These observations uphold the view that alcoholic beverages should be ingested with or soon after meals if it is desired to utilize their qualities and minimize the risks of possible untoward effects.

Surgery, St. Louis

34:1-168 (July) 1953

Studies on Blood Ammonia in Normal and Shock States. R. M. Nelson and D. Seligson.—p. 1.
Intraductal Secretory Pressure of Pancreas in Unanesthetized Dogs. J. H. Wulsin and V. E. Siler.—p. 9.
Temporary Occlusion of Inferior Vena Cava Suggested as Means of Treatment in Thromboembolism Requiring Cava Ligation. M. A. Streuter and J. R. Paine.—p. 20.
Hyaluronidase as an Aid in Surgical Dissection. M. A. Streuter.—p. 28.
Experimental Evaluation of Effectiveness of Tween 80 in Reducing Fecal Nitrogen and Fat Loss Following Subtotal and Total Gastrectomy. T. C. Everson.—p. 33.
*Adenolipomatosis of Thyroid: New Type of Goiter. V. E. Chesky, W. C. Dreese and C. A. Hellwig.—p. 38.
Jejunal Polyps and Intussception Associated with Abnormal Melanin Pigmentation. W. G. Young Jr.—p. 46.
Tibial Fracture Causing Ischemia of Anterior Crural Muscle Group. J. M. Linder and J. Harley.—p. 51.
*Papilloma of Gall Bladder with in Situ Carcinoma. E. J. Tabah and G. McNeer.—p. 57.
An Anorectoplasty for Extensive and Complicated Hemorrhoids. E. Granet.—p. 72.
Plastic Armor for Experimental Animals. J. K. Narat, J. P. Cangelosi and J. V. Belmonte.—p. 88.

Adenolipomatosis of Thyroid: New Type of Goiter.—The patient, a 15-year-old youth, had had a lump in the neck since birth. The lump increased gradually. At the age of 9, the boy was given tablets for a goiter. He has three sisters and five brothers; one of the brothers had a fatty tumor removed from the side of his neck while in military service. Physical examination of the boy revealed normal conditions, except for the large tumor, which gave the impression of a cystic adenoma. On operation the neck tumor was found to be yellow in color and much softer than thyroid tissue. A rather large portion of thyroid was left on the right side to prevent myxedema. Microscopic examination of the surgical specimen, which weighed 253 gm., revealed that the tissue of the right lobe was not arranged in lobules; follicles of various sizes were separated by dense fibrous stroma. Large islands of mature fat tissue alternated with thyroid tissue. Amyloid could not be demonstrated by special stains. The histological diagnosis was congenital lipoadenomatosis of the thyroid. The glandular and adipose tissue were intermingled at a ratio of one to four. There was evidence of chronic thyroiditis. It is believed that the goiter was caused by admixture of fat tissue in thyroid tissue during the first months of embryonal life. The authors call attention to a report by Simard, which appeared in a French Canadian publication in 1945. It described a new type of goiter, which he called sclerolympholipomatosis of the thyroid. The authors feel that the clinical and structural aspects of their case greatly resemble those of Simard's case. The admixture of fat was not associated with amyloid of the thyroid as in the cases of Oberlin and Fuller.

Papilloma of the Gallbladder with In Situ Carcinoma.—True papilloma of the gallbladder is rare. Tabah and McNeer estimate its incidence at about 1 in 100 cholecystectomies. It is sometimes confused with cholesterol polyps or with the epithelial proliferations seen in chronic cholecystitis. The diagnosis of true papilloma of the gallbladder requires cholecystography. The authors describe observations on four patients with papilloma of the gallbladder, who were recently observed at the Memorial Cancer Center in New York City. These cases are especially noteworthy, because noninfiltrating carcinoma in situ originated in the papilloma in three of the patients. In the opinion of most writers there is no known relationship between the two lesions. The authors feel that cholecystectomy is the only effective treatment of papilloma of the gallbladder, because this condition is capable of giving rise to symptoms, because it is frequently associated with cholelithiasis and cholecystitis, and most important, because it is a precancerous lesion, in which malignant degeneration is quite likely.

Surgery, Gynecology and Obstetrics, Chicago

96:1-128 (July) 1953

Deformities of Urinary Tract with Congenital Absence of Vagina. J. T. Phelan, V. S. Counseller and L. F. Greene.—p. 1.
Survey Roentgenograms as an Aid in Diagnosis of Acute Abdominal Conditions. W. W. Sands.—p. 4.
Compilation Autografts of Subclavian Artery for Bridging Short Defects in Thoracic Aorta: Experimental Study with Pertinent Human Measurements. E. J. Schmitz, K. A. Merendino, L. B. Kiriluk and others.—p. 11.
Intragastric Temperature: Its Variations in Gastric Ulcers. H. B. Benjamin, M. Wagner and W. Zeit.—p. 19.
*Blood Volume Studies in Normal Humans. L. W. Brady, D. Y. Cooper, M. Colodzin and others.—p. 25.
Bedside Manometric Test to Localize Balloon of Miller-Abbott Tube in Intestinal Obstruction. L. C. Bartlett.—p. 33.
*Polyvinylpyrrolidone in Severe Burn Shock. J. W. V. Cordice Jr., J. E. Suess and J. Scudder.—p. 39.
Histogenesis of Squamous Cell Metaplasia of Cervix and Endometrium. C. F. Fluhmann.—p. 45.
Further Investigations on Use of Heparin in Treatment of Experimental Frostbite. R. B. Lewis and P. W. Moen.—p. 59.
Intramedullary Nailing of Fractures of Shaft of Long Bones. M. F. Hauge.—p. 67.
Experimental and Clinical Evaluation of Surgical Suture Materials. E. T. Madsen.—p. 73.
Experimental Vascular Grafts: III. Dimensional Changes in Short and Long Length Fresh and Preserved Aortic Homografts Implanted into Thoracic Aorta of Growing Pigs: Preliminary Report. L. M. Nyhus, E. A. Kanar, H. G. Moore Jr. and others.—p. 81.
Anatomic Basis for Ischemia Localized to Certain Muscles of Lower Limb. E. A. Edwards.—p. 87.
*Coin Lesions of Lung. C. F. Storey, R. A. Grant and B. F. Rothmann.—p. 95.
Cancer of Rectum: Results of Treatment of All Cases Admitted to Pondville Hospital June 1927 Through December 1946. E. M. Daland and L. G. Mitchell.—p. 105.

Blood Volume Studies in Normal Humans.—The study was divided into three parts. In part 1 it was demonstrated by using iodinated human serum albumin that the three-sample withdrawal method gives the more consistent results. Making use of the disappearance curve accounts for the loss of the material from the blood stream, the loss due to diffusion of the material into the lymph, and the variations in the initial mixing rate. In part 2 the values for the plasma volume obtained by utilizing Evans' blue or iodinated human serum albumin show a good degree of reproducibility in the same patient in spite of a number of technical difficulties. In part 3 the plasma and total blood volumes obtained by using radioactive phosphorus tagged red blood cells, iodinated human serum albumin, and Evans' blue were compared simultaneously in the same patient. The first test gives the lowest values, the second the middle values, and the third the highest. By using the above data it was demonstrated that the total body hematocrit is lower than the peripheral vessel hematocrit. On the basis of theoretical considerations the authors believe it is better to determine the total blood volume by adding the red cell mass determined by radiophosphorus tagged red blood cells and the plasma volume obtained with iodinated human serum albumin. Both are direct measurements and do not introduce the error of the peripheral vessel hematocrit.

Polyvinylpyrrolidone in Burn Shock.—The hydrophilic character and osmotic activity of polyvinylpyrrolidone are factors that increase and maintain circulating blood volume. The ability of the polyvinylpyrrolidone molecule to bind or adsorb toxins and the fact that it is inexpensive, completely sterilizable, producible in unlimited quantities, nonantigenic, and well tolerated assure polyvinylpyrrolidone an important role in burn therapy. Cordice and associates review their experience with polyvinylpyrrolidone in Ringer's solution in the treatment of eight severely burned patients. The areas involved by the burns varied from 20 to 75% of the body surface. From 1,000 to 3,000 cc. of polyvinylpyrrolidone in Ringer's solution was infused in from one to eight and one-half hours. All patients treated with the polyvinylpyrrolidone solution on admission showed recovery from shock, decrease in hematocrit, improvement of toxicity, and increases in urinary output. In three cases the hemoglobinuria cleared in periods of 12, 15, and 48 hours respectively, but the improvement and the fall in hematocrit were not maintained as well as in hemorrhagic and traumatic shock. This may be explained by the continued fluid and protein loss from the burned areas. Early improvement with fall in hematocrit was always observed, and in none of the four patients who died was death caused by shock or hemoconcentration. Three of the fatal cases showed laboratory evidence of impairment of liver function. There was no evidence of toxic action of polyvinylpyrrolidone; a reaction following infusion of the drug in one patient seemed more likely to be due to the increase in blood volume with toxins from burned areas being drawn into the blood stream. A sharp decrease in plasma protein occurred in two patients; this should be guarded against with adequate diet, intravenous plasma, albumin, and blood transfusions with early skin grafting. The results substantiate previously published experiences and indicate that polyvinylpyrrolidone is a valuable adjunct in the early treatment of burns.

Coin Lesions of Lung.—Storey and associates list the following as the characteristics of coin lesions of the lung: 1 to 5 cm. in size, round or oval in shape with sharply circumscribed borders, surrounded on all sides by normal appearing lung, producing no symptoms, homogeneous in density or containing calcium, and solitary. They present observations on 40 patients with this lesion. The nodule in each case was discovered upon routine x-ray examination of the chest. In all except two of the cases surgical excision was resorted to. Tuberculoma was the usual preoperative diagnosis. A malignant tumor was encountered in seven instances. There was no surgical mortality, and the postoperative morbidity was minimal. A spread did not occur in any of the patients whose lesion proved to be of tuberculous origin. Five cases are presented to illustrate the hazards of the watchful waiting program sometimes advocated in cases of this type. Spontaneous resolution of these nodules cannot be anticipated. If of tuberculous origin, as they often are, they will not respond to medical treatment. These lesions are not influenced by streptomycin, because the drug does not penetrate the fibrous wall of tuberculomas. Although it cannot be stated with statistical accuracy just how frequently these lesions cavitate and spread, it is well known that such a disaster occurs occasionally. Of much greater importance is the fact that until histological study of the excised mass has been carried out, the diagnosis can only be presumptive. Experience has shown that it is unsafe to manage these patients on the assumption that a coin lesion is probably benign. In a collected series of 362 patients with histologically verified coin lesions, including those reported in this paper, neoplastic disease was found in 108 cases. The authors feel that a cancer rate of nearly 30% makes it difficult to defend any therapeutic regimen that does not provide for their prompt removal.

Virginia Medical Monthly, Richmond

80:355-416 (July) 1953

The Physician as Citizen. W. B. Blanton.—p. 358.
Recognition of Pre-Eclampsia and Pre-Hospital Therapy of Pre-Eclampsia. J. R. Kight.—p. 360.
Adenocarcinoma of Urinary Bladder. G. W. Link and R. C. Bunts.—p. 362.
Cesarean Section: Present Day Trends with Report of Cases. E. S. Groseclose.—p. 368.
Some Roentgenological Aspects of Peptic Ulcer. J. Mc. L. Adams.—p. 379.
Etiology and Treatment of Peptic Ulcer: Review. H. P. Maccubbin.—p. 384.
Resume of Surgical Treatment of Peptic Ulcer. E. Horgan.—p. 389.
Microcolony Technique for Rapid Determination of Bacterial Sensitivity to Antibiotics. H. J. Welshimer, M. M. Jones and C. D. Gibson.—p. 392.
Neonatal Asphyxia Due to Bilateral Choanal Atresia. T. S. Chalkley.—p. 398.

West Virginia Medical Journal, Charleston

49:181-218 (July) 1953

Gastric Resection for Perforated Peptic Ulcer. J. C. Condry.—p. 181.
Dexedrine Poisoning in Infant. R. T. Rapp.—p. 184.
Fat Embolism Associated with Multiple Fractures. J. E. Summers.—p. 185.
Regional Enteritis: Report of Case. W. D. McClung.—p. 187.
Drug Addiction in Upper Economic Levels: Study of 142 Cases. E. J. Morhous.—p. 189.

Yale Journal of Biology and Medicine, New Haven

25:447-556 (June) 1953. **Partial Index**

Development of Rooming-In at Yale. E. B. Jackson.—p. 484.
Social History of the Caul. T. R. Forbes.—p. 495.
Study of 300 Consecutive Cases of Abdominal Wound Closure with Alloy Stainless Wire Sutures. J. M. Freiheit and P. R. de Villers.—p. 509.
Cephalic Version in Breech Presentation. I. Friedman.—p. 517.
**Unrecognized Intrauterine Anoxia as Cause of Fetal Death During Labor.* H. C. Taylor.—p. 525.
Theory and Practice of Natural Childbirth. F. W. Goodrich Jr.—p. 529.

Intrauterine Anoxia as Cause of Fetal Death During Labor.—Although toxemia, prolonged labor, traumatic delivery, maternal anemia, excessive analgesia and anesthesia, and placental accidents have long been recognized as causes of intrauterine anoxia and fetal death, relatively little attention has been directed toward labor itself. Taylor believes the production of anoxia by over-forceful labor may well account for some of the so-called "unexplained fetal deaths in utero." He cites the obstetrical histories of three women, which suggest that when there are exceedingly strong, hard, and frequent labor contractions, intrauterine anoxia may occur, leading to "unexplained deaths." Precipitate, or strong and forceful, rapid, driving labor added to the known deficiencies inherent in placental physiology can bring about fetal death in utero. This may happen repeatedly in the same patient. All three women had a forceful type of driving labor typified by strong pains lasting at least a minute and recurring at about two-minute intervals. One of the women was conscious of strong Braxton Hicks contractions, which may have been of significance. In all three instances the appearance of meconium-stained amniotic fluid served as an indication of intrauterine fetal anoxia. Unfortunately, once fetal distress has been noted, the damage may already have occurred, although subsequent treatment may enhance the possibility of recovery. Elective cesarean section seems to be the method of choice in preventing a second fetal death.

FOREIGN

Acta Chirurgica Scandinavica, Stockholm

105:1-318 (Nos. 1-4) 1953. **Partial Index**

Peritonitis Due to Appendicitis and Its Treatment. G. Bohmansson.—p. 11.
Gastroenterostomy with Resection of Vagus Nerves in Treatment of Adherent Duodenal Ulcers. N. Blixenkrone-Møller.—p. 33.
Tendon Transposition in Paralysis of Opposition of Thumb. H. H. Bohr.—p. 45.
Treatment of Fractures of Upper End of Radius. T. Castberg and E. Thing.—p. 62.
Pharyngeal Flap Operation in Velopharyngeal Insufficiency. P. Fogh-Andersen.—p. 92.
*Segmental Cystectomy in Treatment of Vesical Carcinoma: Analysis of 16 Cases. A. Gammelgaard and P. Morville.—p. 96.
Further Observations Regarding Prognosis and Diagnosis in Hyperparathyroidism. J. Hellström.—p. 122.
Histological Changes of Renal Medulla in Hydronephrosis. E. F. Hjort.—p. 132.
Some Problems in Operative Treatment of Hyperinsulinism. J. Holst.—p. 138.
*Valvulotomy for Mitral Stenosis. E. Husfeldt, H. C. Engell and A. Pedersen.—p. 144.

Segmental Cystectomy in Vesical Carcinoma.—The authors report on 16 patients on whom segmental cystectomy was practiced for vesical carcinoma in a Copenhagen hospital between the years 1944 and 1951. The total number of patients with cancer of the bladder admitted in this period was 46, of whom 16 were inoperable and 14 were treated with cystotomy plus electrocoagulation or with total cystectomy. Three women and 13 men are reported on here. More than half of them were over 60 years. In nine cases the resection necessitated transplantation of one ureter to some other part of the bladder. There was no postoperative death, and complications were limited to one case of protracted suprapubic fistula with pubic osteitis. In four cases the tumor was localized to the apex, in eight to the right side of the bladder, and in four to the left. In 10 of the cases the tumor was macroscopically papillomatous, and in 6 it was nodular and ulcerative. In 50% of the cases the duration of illness was from six months to two years; two patients had previously (six months and two years before) been treated for benign papilloma. On reexamination, from six months to eight years after the operation, eight patients were free from recurrence, six had a relapse, and in two this aspect was uncertain. The observation period for three of those who did not relapse was 6 to 12 months, and for four it was over 3 years. The papillomatous tumors of relatively low malignancy and slight penetration into the bladder wall are nonrelapsing. Also the localization of the lesion plays a role, as all the cases in which the tumor was localized to the apex of the bladder have been free from relapse regardless of the degree of malignancy and depth of penetration. Segmental cystectomy, which is merely a local radical treatment, has advantages over total cystectomy. The efficacy of segmental cystectomy can be increased by earlier diagnosis and surgical treatment.

Valvulotomy for Mitral Stenosis.—Sixty patients were operated on for mitral stenosis in a Copenhagen hospital between January, 1950, and July, 1952. Their ages ranged from 14 to 54 years. Nine patients died, but of 45 patients less than 40 years of age only 2 died. Of the 14 patients who had symptoms of cardiac incompetence at rest at the time of operation, 4 died. Owing to the questionable reliability of the diagnostic criteria, the authors also operated on patients who were supposed to have some mitral incompetence. It proved possible to diagnose the majority of the cases of mitral insufficiency by stethoscopic examination. The accuracy of the diagnosis is improved by examination of the pulmonary capillary pressure curves. As a rule, the valvulotomy has been performed with the finger alone, an instrument having been used in only four cases, but in the future an instrument will be used in all cases in which the valve is found to be leathery and elastic. The authors preferred to use the finger unprotected by a glove, because one gets a better impression of the anatomical details and of the amount of regurgitation. Thirty-six patients were reexamined 4 to 22 months after the operation. Of these, 24 were improved to an extent that they could be placed into a "better" group, according to the classification of the American Heart Association. Those who did not improve were mainly those with severe mitral insufficiency and with leathery, elastic valves. Repeated attacks of pulmonary edema and hemoptysis are indications for the operation. A history of peripheral emboli, and combined stenosis and regurgitation and rightsided heart failure are only relative contraindications in patients below 40 years of age; in patients above 40 years the indications must be stricter. Contraindications are: active rheumatic infection, complicating aortic failure and pronounced incompetence indicated by stethoscopic observations and by the pulmonary capillary pressure curves.

British Journal of Dermatology, London

65:195-234 (June) 1953

Treatment of Lupus Erythematosus with Mepacrine and Para-Aminobenzoic Acid. H. Black.—p. 195.
Systemic Lupus Erythematosus with Nodular Lesions: Report of Case. A. N. P. Milner.—p. 204.
Unusual Alopecia Capitis in Acute Lupus Erythematosus, Sclerodermia, and Dermatomyositis. C. D. Evans.—p. 212.

British Journal of Radiology, London

26:273-328 (June) 1953

Irradiation Sarcoma. A. Jones.—p. 273.
Chronic Myeloid Leukaemia. I. Some Observations on Chronic Myeloid Leukaemia. D. A. G. Galton.—p. 285.
*Id.: II. Comparative Analysis of Incidence and of Results of Treatment of 56 Cases. E. M. Ledlie.—p. 290.
Alpha-Ray Dosage in Bone Containing Radium. F. W. Spiers.—p. 296.
Effect of Environmental Factors on Radio-Sensitivity of Lymph Nodes Cultured in Vitro. O. A. Trowell.—p. 302.
Reflux Oesophagitis and Its Radiological Differential Diagnosis. J. Dawson.—p. 310.
Bronchography Using Dionosil Oily. W. S. Holden and R. S. Crone.—p. 317.
Sign of Intussusception. H. Jackson.—p. 323.
Effect of Chemical Agents on Nucleic Acid and Protein Synthesis in Rat Tumour Tissue in Vivo. B. E. Holmes and L. K. Mee.—p. 326.

Incidence and Treatment of Myeloid Leukemia.—The occurrence of chronic myeloid leukemia is reported in 24 male and 32 female patients who were admitted to the Royal Cancer Hospital in London between 1936 and 1951. The average age of onset of the disease for the 56 patients was just over 44 years. Comparison with groups of cases of chronic myeloid leukemia reported by other workers suggested a shift towards a higher age of onset of the disease and a change in the ratio of men to women towards a higher proportion of females than males. Statistical figures showed a consistent rise in the incidence of myeloid leukemia, probably not entirely due to improvements in diagnosis and recording. The duration of the disease, whatever treatment was employed, has remained remarkably constant over the last 30 years and is between 3 and 4 years. X-ray irradiation alone or in combination with chemotherapy has been used in most of the cases. The irradiation technique usually adopted consisted of irradiation of the spleen only; the average dose given was between 50 and 150 r twice a week, up to an average total of between 500 and 1,500 r in four to eight weeks, though in some patients a good remission was obtained with a smaller dose. Comparison of the methods of treatment used showed that better results have been obtained with external roentgen irradiation than with other methods so far employed. Radioactive phosphorus has been used in too few cases for any conclusions to be drawn. Of the various chemotherapeutic agents all except 1,4-dimethanesulphonyloxybutane (Myleran) have been discarded by the author on account of the relatively poor remissions achieved and the high incidence of toxic effects. The preliminary trials of Myleran in doses of 4 mg. daily by mouth have been encouraging. It remains to be seen whether the bone marrow will show repeated favorable responses to this agent. There is no evidence as yet that any of the methods of treatment can be regarded as a cure, but it is probable that some prolongation of life is obtained in a few patients and certain that in many more treatment can so alter the quality of life as to turn it from one of invalidism into one enjoyable and worth while.

BOOK REVIEWS

The Founders of Neurology: One Hundred and Thirty-Three Biographical Sketches Prepared for the Fourth International Neurological Congress in Paris. By eighty-four authors. Edited by Webb Haymaker, M.D., Chief, Neuropathology Section, Armed Forces Institute of Pathology, Washington, D. C. With bibliographical and editorial assistance of Karl A. Baer, bibliographer, Army Medical Library, Washington, D. C. Cloth. $10.50. Pp. 479, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1953.

This book is a compilation of biographies of the important figures in neurology of the past 100 years, excluding those who are still living. The biographies were written by various neurologists, most of whom have had some personal contact with the person they describe. The book does not attempt to give a connected history of the development of neurology but is restricted to short biographies of 133 physicians, mainly German, French, English, and American, with a photograph of each. These biographies are divided into groups according to the special field of interest as follows: neuroanatomists, neurophysiologists, neuropathologists, clinical neurologists, and neurosurgeons. The sketches are too brief to give anything but a glimpse of the life and personality of the subject, but on the whole they are well written; and the photographs are clearly reproduced.

Forewords were written by Dr. Henry A. Riley, vice-president of the Fourth International Neurological Congress, Col. J. H. McNinch, director, Army Medical Library, and Brig. Gen. Raymond O. Dart, director, Armed Forces Institute of Pathology. A short chapter that defines the academic terms used in the biographies gives the reader insight into the academic hierarchy of France, Germany, and England. There is a brief list of references at the end of each biography that gives a few of the more important publications of the persons and, in some cases, sources for a more complete biography. There is a full and adequate index, and the book should be of value to all physicians interested in the nervous system.

Thoracic Surgical Management. By J. R. Belcher, M.S., F.R.C.S., Consultant Surgeon at London Chest Hospital, London, and I. W. B. Grant, M.B., M.R.C.P., Assistant Physician, Edinburgh Northern Hospitals, Edinburgh. Foreword by Sir Clement Price Thomas, K.C.V.O., F.R.C.S., Surgeon to Westminster and Brompton Hospitals, London. Cloth. $3.50. Pp. 196, with 65 illustrations. [Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2]; Baillière, Tindall & Cox, 7-8 Henrietta St., Covent Garden, London, W.C.2, 1953.

This small book is full of useful information clearly and concisely expressed. It is intended principally for senior residents in thoracic surgery or those in general surgery who come in contact with thoracic problems only occasionally. The book is well printed, well illustrated by clear line drawings, and is thoroughly recommended, not only to the comparatively junior resident in surgery but to all who are interested in surgery of the chest. Throughout the advice proffered is sound, sane, and common sen ould be in the libraries of all hospi done.

vitamins are interesting and commend themselves to the clinician. The review of dietary neuropathies, including beriberi, alcoholic peripheral neuritis, polyneuritis gravidarum, acrodynia, and Wernicke's encephalopathy, develops the point that the earliest signs of thiamine deficiency in some patients may be peripheral nerve damage, in others, disturbances of the cardiovascular system predominate, and, in a small minority, Wernicke's encephalopathy is the initial abnormality. Pediatricians will find the discussion of the problem of absorption and transportation of fat-soluble vitamins particularly interesting because of the low store of these vitamins in the newborn. In the sections on the hormones, experimental aspects of study predominate. Of particular importance are the sections dealing with the effects of steroid hormones on the enzymes involved in tissue oxidation and carbohydrate metabolism.

Manual of Comparative Anatomy. By Osmond P. Breland, Ph.D., Professor of Zoology, University of Texas, Austin. Second edition. Cloth. $4.50. Pp. 256. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farrington St., London, E.C. 4, 1953.

The first edition of this manual was published 10 years ago. As the title indicates, the book is to be used by students of comparative anatomy. This edition has been carefully revised and rewritten to conform with modern ideas. In addition to the classic animals, dogfish, necterus, and cat, it includes sections on the lamprey, perch, turtle, and pigeon. The book is well written and free from inaccuracies. Boldface type for the names of structures is used extensively. The author should be complimented on his fine descriptive style. The instructions for dissection are clear and definite. Indeed, the only drawback of this book is the absence of illustrations. Perhaps there is some merit in this, but, in laboratories where facilities do not exist for the study of all the representative species, it is advisable for the student to have illustrations of the important aspects of the species not subjected to dissection. This book should be most helpful to students of comparative anatomy and will also serve as a reference for research workers.

On Burns. Compiled and edited by Nathan A. Womack, M.D. Participants: Dr. William Altemeier, et al. Publication number 165, American Lecture Series, monograph in Bannerstone division of American Lectures in Surgery. Edited by Michael E. De Bakey, M.D., Professor of Surgery, Baylor University College of Medicine, Houston, Texas, and R. Glen Spurling, M.D., Clinical Professor of Surgery, University of Louisville, Louisville, Ky. Plastic Surgery Division. Editor: James Barrett Brown, M.D., Professor of Clinical Surgery, School of Medicine, Washington University, St. Louis. Cloth. $5.50. Pp. 178, with 7 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1953.

This book represents a virtually verbatim transcript of the symposium on burns held at Iowa City in May, 1951. This symposium, which was held in conjunction with a National Civil Defense effort, might be thought of as laying the backround in medicine and surgery that should underlie any ve or logistical steps taken in civil defense. The fibrous dysplasia existed in the femur and in the adjoining soft parts a myxofibroma. The author cites two other cases from the literature, in which osteitis fibrosa was probably brought on by fibrous dysplasia, and in these cases likewise myxofibromas were found in the surrounding musculature. Myxofibromas are found also in von Recklinghausen's neurofibromatosis, which seems to be related to fibrous dysplasia. Nevi of a "coffee with milk" color as well as incretory disorders such as pubertas praecox have frequently been found in association with fibrous dysplasia, and since such lesions are found also in neurofibromatosis, it is assumed that these entities are related.

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British Medical Journal, London

1:1291-1344 (June 13) 1953

•Parenteral Hexamethonium in Hypertension. B. Morrison.—p. 1291.
Effects of Hexamethonium on Normal Individuals in Relation to Its Concentration in Plasma. B. Morrison and W. D. M. Paton.—p. 1299.
•Farmer's Lung. T. C. Studdert.—p. 1305.
Intractable Gastric Crises Relieved by Chordotomy. G. O. Mayne.—p. 1309.
•Toxic Effects of Phenylbutazone. J. R. Nassim and T. Pilkington.—p. 1310.
Toxic Effects of Phenylbutazone, with Special Reference to Disorders of Blood. J. C. Leonard.—p. 1311.
Ethopropazine Hydrochloride in Treatment of Cerebral Palsy. R. G. Mitchell.—p. 1313.
Adrenaline Necrosis. G. Leslie and D. McPhee.—p. 1315.

Parenteral Administration of Hexamethonium in Hypertension.—Hexamethonium, pentamethonium, or a homologue of hexamethonium have now been in use for over three years in the treatment of hypertension. Most investigators have used the oral route, and there is much difference of opinion concerning the benefit obtained. Morrison reports observations on 39 hypertensive patients who were treated with hexamethonium bromide by subcutaneous injection. The patients were drawn from the complicated-essential, malignant, or renal groups of hypertension; uncomplicated cases were not included. Five patients died during the treatment and it was discontinued for various reasons in 6 others, but 28 patients received regular therapy for periods varying between 3 and 15 months and were seen at least once a month. After the development of a variable amount of tolerance to the drug during the first four to eight weeks, all patients could be stabilized on a dose which gave an average blood pressure level much below that found in the control period. Reduction in the mean systolic pressure ranged from 20 to 90 mm. Hg and in the mean diastolic pressure from 8 to 40 mm. Hg. Hypertensive headaches were relieved in 15 out of 19 cases, and lessened in frequency and severity in the other four. Giddiness disappeared and encephalopathic attacks did not recur, except in one instance. Shortness of breath from cardiac causes was generally improved and in several cases there was relief from acute cardiac dyspnea. Diminution in cardiac volume was demonstrated in five of seven cases, and in seven out of 16 cases electrocardiographic signs of left ventricular hypertrophy were altered towards the normal. Retinopathy was strikingly improved in all severe cases, papilledema subsiding, and extensive exudates and hemorrhages becoming reabsorbed, with restoration of normal vision after about six months' treatment. One instance of coronary thrombosis and two major and two minor cerebral vascular accidents occurred during treatment, but in two of the latter the blood pressure was high at the time. No evidence of increased damage was found among patients with impaired renal function. Three patients, after successful treatment of from seven to 15 months, were found to have dyspnea and symmetrical opacities in the lung fields. The pathogenesis of these pulmonary changes is still obscure. Although these three patients required large doses of the drug, others who required as much or more have remained well. The author feels that the risk of these complications should not be regarded as a contraindication to the use of hexamethonium in severely ill hypertensive patients.

Farmer's Lung.—The condition designated as "farmer's lung" appears to be commonest in regions with high rainfall in the hay-gathering season and primitive methods of harvesting and storage in closed barns. Much information was obtained from several practitioners of the area where farmer's lung is observed. The cases reviewed consist of six confirmed radiologically, and six probable cases that were radiologically inconclusive. The clinical picture is characterized by a nonspecific lung irritation which may follow exposure to mouldy vegetable dusts of any type, but mainly contact with poor quality hay. Although before the severe reaction there may be minor bronchitic episodes following short contact, a distinction must be drawn between true farmer's lung and an asthmatic attack following exposure to mouldy dust. The main feature of the disease is breathlessness and cyanosis which develop within 12 hours of exposure. The onset is sudden, and may be associated with a rigor, vomiting, a dry cough, and a feeling of suffocation. The picture resembles that of acute edema of the lungs, but there is no cardiac embarrassment. Widespread fine crepitations are heard, but no localized areas of consolidation are detected. Clearing of radiological and physical signs usually requires six to eight weeks. After the first two or three weeks the breathlessness becomes less distressing, but then loss of weight and night sweats occur. After three months the patient appears to be well, but there is a tendency for the condition to recur on re-exposure. Treatment has little effect and spontaneous clearing is observed in untreated cases. Farmer's lung is similar to coniosporiosis, byssinosis, and diffuse granulomatous pneumonitis. The author is of the opinion that the condition is a nonspecific interstitial lung reaction to some material in the fungus-laden dust, rather than a true fungous infection.

Toxic Effects of Phenylbutazone.—The drug can be given by mouth or by intramuscular injection, but as the majority of patients treated by the authors were outpatients, the former route was usually employed. Patients were warned of possible side-effects and were asked to restrict their salt intake; those who gave a history of peptic ulcer or cardiovascular or renal disease were excluded. Three patients were suffering from diabetes, which was not affected by phenylbutazone. The series consisted of 109 patients (79 women and 30 men), their ages ranging from 12 to 73 years. Of these, 86 had rheumatoid arthritis, 19 osteoarthritis, and 3 gout. One patient had a ligamentous strain of the knee. The drug was given to 102 patients by mouth in tablets containing 0.2 gm. in daily doses ranging from 0.2 to 1.2 gm. (average dose 0.6 gm.). Seven received intramuscular injections of 1 gm. on four alternate days, followed by weekly injections. All patients were seen first at weekly, then fortnightly, and, later, monthly intervals. A check was kept on the white blood cell count and the sedimentation rate. Symptomatically 59 patients were greatly improved by phenylbutazone, but in none was there a fall in the sedimentation rate. In 15 improvement was only slight, in 25 the drug had no beneficial effect, and in 10 toxic reactions occurred before any therapeutic effect could be noted. Forty-six patients had toxic reactions. These occurred in nearly half of those deriving great benefit. The authors feel that although toxic reactions severe enough to make further therapy dangerous were observed in nearly half the patients, its trial in chronic disabling conditions seems justifiable, since there are a large number of patients who derive benefit from it without toxic manifestations.

Fortschr. Röntgenstrahlen & Röntgenpraxis, Stuttgart

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Rare Disorders of the Maxillary Sinus. L. Psenner.—p. 582.
•Simultaneous Occurrence of Fibrous Dysplasia (Jaffé-Lichtenstein) and Extra-Osseous Fibromyxoma. K. Braunwarth.—p. 589.
Selective Arteriography. D. Schoen.—p. 600.
Roentgenologic Aspects of Tear of Achilles Tendon. D. Schoen.—p. 604.
Roentgenologic Aspects and Course of Perforation of Gallstones. K. Brantner.—p. 613.
Extensive Hemangiomatosis with Bone Involvement. W. Haag.—p. 616.
Calcification of Spermatic Duct. H. Wieland.—p. 618.

Simultaneous Occurrence of Fibrous Dysplasia (Jaffé-Lichtenstein) and Extraosseous Fibromyxoma.—Braunwarth points out that in 1938 Jaffé and Lichtenstein described fibrous dysplasia as a separate entity, rejecting a relationship to osteitis fibrosa generalisata, despite the fact that the histological aspects of both diseases are similar. The concept of Jaffé and Lichtenstein has been widely accepted, but Albright and collaborators observed cases in which in addition to bone changes cutaneous lesions existed, and in some cases incretory disturbances in the form of pubertas praecox were observed. Uehlinger in 1940 described necropsy studies on a patient with polyostotic fibrous dysplasia. This patient also had fibromyxomas in the thigh and leg. The case presented in this paper concerned a woman, aged 56, who asked medical advice about a swelling on the left thigh that had developed in the course of the last year. This case resembles the one described by Uehlinger in that fibrous dysplasia existed in the femur and in the adjoining soft parts a myxofibroma. The author cites two other cases from the literature, in which osteitis fibrosa was probably brought on by fibrous dysplasia, and in these cases likewise myxofibromas were found in the surrounding musculature. Myxofibromas are found also in von Recklinghausen's neurofibromatosis, which seems to be related to fibrous dysplasia. Nevi of a "coffee with milk" color as well as incretory disorders such as pubertas praecox have frequently been found in association with fibrous dysplasia, and since such lesions are found also in neurofibromatosis, it is assumed that these entities are related.

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BOOK REVIEWS

The Founders of Neurology: One Hundred and Thirty-Three Biographical Sketches Prepared for the Fourth International Neurological Congress in Paris. By eighty-four authors. Edited by Webb Haymaker, M.D., Chief, Neuropathology Section, Armed Forces Institute of Pathology, Washington, D. C. With bibliographical and editorial assistance of Karl A. Baer, bibliographer, Army Medical Library, Washington, D. C. Cloth. $10.50. Pp. 479, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1953.

This book is a compilation of biographies of the important figures in neurology of the past 100 years, excluding those who are still living. The biographies were written by various neurologists, most of whom have had some personal contact with the person they describe. The book does not attempt to give a connected history of the development of neurology but is restricted to short biographies of 133 physicians, mainly German, French, English, and American, with a photograph of each. These biographies are divided into groups according to the special field of interest as follows: neuroanatomists, neurophysiologists, neuropathologists, clinical neurologists, and neurosurgeons. The sketches are too brief to give anything but a glimpse of the life and personality of the subject, but on the whole they are well written; and the photographs are clearly reproduced.

Forewords were written by Dr. Henry A. Riley, vice-president of the Fourth International Neurological Congress, Col. J. H. McNinch, director, Army Medical Library, and Brig. Gen. Raymond O. Dart, director, Armed Forces Institute of Pathology. A short chapter that defines the academic terms used in the biographies gives the reader insight into the academic hierarchy of France, Germany, and England. There is a brief list of references at the end of each biography that gives a few of the more important publications of the persons and, in some cases, sources for a more complete biography. There is a full and adequate index, and the book should be of value to all physicians interested in the nervous system.

Thoracic Surgical Management. By J. R. Belcher, M.S., F.R.C.S., Consultant Surgeon at London Chest Hospital, London, and I. W. B. Grant, M.B., M.R.C.P., Assistant Physician, Edinburgh Northern Hospitals, Edinburgh. Foreword by Sir Clement Price Thomas, K.C.V.O., F.R.C.S., Surgeon to Westminster and Brompton Hospitals, London. Cloth. $3.50. Pp. 196, with 65 illustrations. [Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2]; Baillière, Tindall & Cox, 7-8 Henrietta St., Covent Garden, London, W.C.2, 1953.

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Vitamins and Hormones: Advances in Research and Applications. Volume X. Edited by Robert S. Harris, Professor of Biochemistry of Nutrition, Massachusetts Institute of Technology, Cambridge, G. F. Marrian, Professor of Medical Chemistry, University of Edinburgh, Edinburgh, and Kenneth V. Thimann, Professor of Plant Physiology, Harvard University, Cambridge. Cloth. $8. Pp. 421, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1952.

The contents of this volume of a valuable series suggest a reversal of the title to more properly represent the 80% of the textual material devoted to the endocrine system. The editors remark: "This is a reflection of the greater amount of research being conducted at present in the hormone than in the vitamin field." Nevertheless, the sections devoted to vitamins are interesting and commend themselves to the clinician. The review of dietary neuropathies, including beriberi, alcoholic peripheral neuritis, polyneuritis gravidarum, acrodynia, and Wernicke's encephalopathy, develops the point that the earliest signs of thiamine deficiency in some patients may be peripheral nerve damage, in others, disturbances of the cardiovascular system predominate, and, in a small minority, Wernicke's encephalopathy is the initial abnormality. Pediatricians will find the discussion of the problem of absorption and transportation of fat-soluble vitamins particularly interesting because of the low store of these vitamins in the newborn. In the sections on the hormones, experimental aspects of study predominate. Of particular importance are the sections dealing with the effects of steroid hormones on the enzymes involved in tissue oxidation and carbohydrate metabolism.

Manual of Comparative Anatomy. By Osmond P. Breland, Ph.D., Professor of Zoology, University of Texas, Austin. Second edition. Cloth. $4.50. Pp. 256. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farrington St., London, E.C. 4, 1953.

The first edition of this manual was published 10 years ago. As the title indicates, the book is to be used by students of comparative anatomy. This edition has been carefully revised and rewritten to conform with modern ideas. In addition to the classic animals, dogfish, necterus, and cat, it includes sections on the lamprey, perch, turtle, and pigeon. The book is well written and free from inaccuracies. Boldface type for the names of structures is used extensively. The author should be complimented on his fine descriptive style. The instructions for dissection are clear and definite. Indeed, the only drawback of this book is the absence of illustrations. Perhaps there is some merit in this, but, in laboratories where facilities do not exist for the study of all the representative species, it is advisable for the student to have illustrations of the important aspects of the species not subjected to dissection. This book should be most helpful to students of comparative anatomy and will also serve as a reference for research workers.

On Burns. Compiled and edited by Nathan A. Womack, M.D. Participants: Dr. William Altemeier, et al. Publication number 165, American Lecture Series, monograph in Bannerstone division of American Lectures in Surgery. Edited by Michael E. De Bakey, M.D., Professor of Surgery, Baylor University College of Medicine, Houston, Texas, and R. Glen Spurling, M.D., Clinical Professor of Surgery, University of Louisville, Louisville, Ky. Plastic Surgery Division. Editor: James Barrett Brown, M.D., Professor of Clinical Surgery, School of Medicine, Washington University, St. Louis. Cloth. $5.50. Pp. 178, with 7 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1953.

This book represents a virtually verbatim transcript of the symposium on burns held at Iowa City in May, 1951. This symposium, which was held in conjunction with a National Civil Defense effort, might be thought of as laying the background in medicine and surgery that should underlie any administrative or logistical steps taken in civil defense. The participants, in addition to the editor, Dr. Womack, are experts in their field of burn study and treatment. Their remarks and informal comments are of great interest, even though nothing particularly outstanding or new is disclosed in the discussions. The sections are planned as an over-all review or status report on the problem of burns. The presentation is quite effective. The reader of this book should be the civil defense worker who wants to know something about burns. The book is too advanced for the medical student, and it is too elementary for the postgraduate student of surgery who, as an assistant resident or a resident, examines and treats burns. It is unfortunate that the discussions were prepared and transcribed without any bibliography, because the inexperienced reader will now have to trace through other channels the writings that are so extensively referred to in the text.

These book reviews have been prepared by competent authorities but do not represent the opinions of any official bodies unless specifically so stated.

QUERIES AND MINOR NOTES

TRANSFUSIONS IN INFANTS

To the Editor:—*A point has arisen in the question of typing infants and newborn infants for transfusions (routine transfusions as well as replacement transfusions [Rh]). Is it necessary to type, cross match, and determine the Rh factor of the blood given a newborn infant, or is it proper and safe to give Rh-negative, type O blood routinely and repeatedly without typing and cross matching? Why?*

William L. Rumsey, M.D., Elizabeth, N. J.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Although it is correct that in the normal newborn infant the development of isoimmune bodies is usually not very pronounced, normal babies do not receive blood transfusions. When one is dealing with infants with disease processes it seems advisable to follow the same routine procedures for blood transfusions as are established for adults. Typing and cross matching of recipient and donor, regardless of the age, is recommended.

Answer.—It is not good practice to give group O, Rh-negative blood routinely to all newborn infants for transfusion purposes without typing and cross matching tests, even though this is a relatively safe procedure. The question of selecting donors for newborn babies is fully discussed in a book by A. S. Wiener (Blood Groups and Transfusion, ed. 3, Springfield, Charles C Thomas, Publisher, 1943, pp. 69-71). In emergencies, the washed red blood cells of the mother may always be used for newborn babies since the baby's blood never contains antibodies capable of reacting with the mother's red blood cells. There is even slight objection to this if the mother is Rh positive and the baby Rh negative, although newborn babies are relatively incapable of forming antibodies and being sensitized. The recommended procedure is to group newborn babies, test for the Rh factor, and see that the infant receives compatible blood. In cases of erythroblastosis, of course, Rh-negative blood is used even though the baby is Rh positive. In cases of erythroblastosis caused by A-B sensitization, group O blood is used even though the baby belongs to group A or group B. In the unusual cases caused by Hr, Hr-negative blood should be used even though the baby is Hr positive. There is no simple answer to the question, since every case must be individualized.

POLIOMYELITIS

To the Editor:—*Six weeks ago we had three cases of acute anterior poliomyelitis in two weeks at Bryan Air Force Base, Texas. During this period and for a month following we discontinued the use of spinal anesthesia, especially since one patient was a young woman who had been delivered with spinal saddle block anesthesia two weeks prior to the onset of her disease. We have had no cases at this base in the past month, but more cases are being reported in surrounding counties throughout Texas. We would like to know whether it is safe to resume use of spinal anesthesia or whether it should be discontinued altogether.*

William W. Wiltberger, M.D., Bryan, Texas

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—On present evidence no one could say with assurance whether the use of spinal anesthesia in the case described had any connection with the subsequent development of poliomyelitis. No similar case has been found in the literature, and it seems likely that the sequence of events was due to chance rather than cause and effect. Occasionally poliomyelitis has occurred shortly after parenteral injection of various agents. The only data available that are statistically significant relate to injections of agents commonly given to children. With some of these, at least, there is a demonstrated tendency for paralysis to occur selectively in the limb that was the site of the injection. It is not yet clear how this effect is influenced by such variables as the nature and volume of the inoculum, or the site and depth of needle puncture. Nor is it clear, from data on man, that injection of any of the agents studied increases the risk of poliomyelitis (Greenberg, Abramson: *New York State J. Med.* **52:**2624-2629 [Nov. 1] 1952). Some recent animal experiments of Bodian (*Fed. Proc.* **12:**437 [March] 1953) show that intramuscular injections of cortisone or of gelatin, if given during a state of viremia, increase the incidence of paralytic poliomyelitis, with selective paralysis of the injected limb. Bodian suggests that injured nerve fibers at the site of injection may provide an entry for circulating virus into nerve tissues and a route for invasion of the central nervous system. To what extent these findings would apply to a spinal puncture in man can only be conjectured at present. In human patients the probability of a viremia existing at the time of puncture would in any circumstances be small. It would presumably be less for adults than for children (because of acquired immunity) and would depend on the local prevalence of poliomyelitis infection at the time. H. K. Faber, at the meeting of the American Pediatric Society in Atlantic City, May 8, 1953, presented a theory that postinoculation paralysis results from introduction of virus from contaminated skin surfaces or needles at the site of puncture and that introduction of virus by this means can be avoided by prior sterilization of the skin with a 2% tincture of iodine solution.

Answer.—Almost certainly there is no connection between the spinal saddle block anesthesia given two weeks before the onset of acute anterior poliomyelitis and the disease. There have been instances where spinal anesthesia was given to patients with unrecognized prodromal symptoms of poliomyelitis in whom paralysis developed from one to five days later, but this was probably coincidental. Of course, one should avoid the use of spinal anesthesia when there are suspicious prodromal symptoms of poliomyelitis. Spinal anesthesia is contraindicated in a patient who has or has had poliomyelitis with residual paralysis, just as this form of anesthesia should be avoided in anyone who has a history of central nervous system disease. There is no reason why spinal anesthesia should not be used in the area in spite of the occurrence of acute poliomyelitis.

ASCORBIC ACID

To the Editor:—*I read an article in the April, 1952,* Archives of Pediatrics *by Dr. W. J. McCormick of Toronto, Canada, on the chemotherapeutic value of large doses of vitamin C. It was stated that the smoking of one cigarette neutralizes 25 mg. of ascorbic acid in the body, the amount contained in an average-sized orange. If this statement is correct, it would appear that many persons who smoke heavily may have vitamin C deficiency. Can ascorbic acid be bought without a prescription in drug stores in tablets containing up to 250 mg.? Dr. McCormick says the drug is harmless, even in doses as high as 1,000 mg. given intravenously. Is there any evidence that there are less upper respiratory tract infections in areas, such as Florida, in which more citrus fruits are eaten and hence the vitamin C intake is higher?*

M.D., Philadelphia.

Answer.—That the smoking of one cigarette neutralizes 25 mg. of ascorbic acid in the body is not generally accepted as a fact. Adequate data concerning the effect of smoking on the metabolism of vitamin C have not been published. Ascorbic

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

acid tablets can be bought in drug stores without prescription. Several grams of ascorbic acid can be given orally or parenterally daily without producing evidence of toxicity. Ascorbic acid is promptly absorbed from the gastrointestinal tract, and any amount in excess of bodily need is rapidly excreted in the urine. If there is a lower incidence of respiratory tract infections in such areas as Florida, it is unlikely that this is attributable to the availability of citrus fruits in these areas. Although severe ascorbic acid deficiency (scurvy) in animals or man leads to heightened susceptibility to infections and, conversely, the presence of infection may increase the requirement for ascorbic acid, there is no conclusive evidence that the administration of excessive quantities of ascorbic acid enhances resistance to infectious agents.

GILLES DE LA TOURETTE'S DISEASE

To the Editor:—*The reply to the question under the above heading in* The Journal (**151:***962 [March 14] 1953) repeats the myth that Tourette's disease is identical with or similar to latah, "Jumping," and miryachit. There can be no doubt that Tourette's disease is, in itself, a neurological entity, but latah, "Jumping," and miryachit are local variations of a fundamental psychiatric anomaly that are best, in view of existing confusion, called simply the latah reaction. In a paper in the* Journal of Mental Science (**98:***515 [Oct.] 1952) entitled "The Latah Reaction: Its Pathodynamics and Nosological Position," I gave reasons for the above view and also pointed out that the latah reaction is essentially a fright neurosis, with minimal hysterical features, found in persons whose power of adaptation and mastery are limited by a low standard of civilization.*

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CARE OF INFANT OF A DIABETIC MOTHER

To the Editor:—*In Queries and Minor Notes, May 2, 1953, is a question on care of the infant of a diabetic mother. The answer advocates oral administration to the infant of 10 cc. of 5% dextrose in water immediately after birth and then every one or two hours during the first few days, in addition to the regular feedings. It is suggested further that 5% dextrose in sodium chloride solution be injected in each buttock if the dextrose is not taken by mouth.*

This answer stems from the period prior to recognition of the fact that neonatal hypoglycemia is physiological during the first few days of life in infants of both diabetic and nondiabetic mothers. Despite the low blood sugar levels, newborn infants do not have symptoms of hypoglycemia, such as occur in older children and adults. Causes other than hypoglycemia, such as atelectasis and cerebral hemorrhage, have been discovered as responsible for the attacks of cyanosis that often occur in newborn infants of diabetic mothers. Cyanosis in these infants responds more readily to the use of suction and administration of oxygen and carbon dioxide than to administration of glucose, even intravenously. It has been found that routine administration of glucose by mouth does not affect the infant's blood sugar level appreciably. Regardless of weight and size, the infant of a diabetic mother behaves like a premature baby. It is usually edematous. It should not receive regular feedings, as mentioned in the answer; these should be withheld until the edema and respiratory difficulty, if present, are abated, which may take as long as six days. Some physicians advocate very small intramuscular doses of mercurial diuretics (0.1 cc.) to hasten the correction of the edema.

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To the Editor:—*In* The Journal, *May 2, 1953, page 105, is a question about the care of a newborn infant of a severely diabetic mother. The answer given needs amplification. The question indicated an interest in the use of intravenously administered glucose solutions. Actually, this is seldom needed, because few, if any, of these infants have hypoglycemia that requires correction in the neonatal hours. The primary cause of death is pulmonary atelectasis secondary to hyaline membrane formation. Other causes are congenital heart defects and perhaps chemical and hormonal factors that are not well understood.*

Treatment of the infant involves first the use of gentle aspiration of the mouth, nose, and pharynx and perhaps the passing of a catheter into and aspiration of the stomach shortly after delivery, especially if the baby has been born by cesarean section. My routine procedure, following aspiration in the delivery room, consists of placing the infant, regardless of weight or maturity, in a humidified, oxygenated incubator, where it is left undisturbed, except for further aspiration, if needed. Nurses are asked to observe the color and respiration carefully and to watch for convulsive movements during the first 24 hours of life. Blood glucose determinations are not made routinely, for the normal newborn infant of a nondiabetic mother may have a blood glucose level of 50 mg. per 100 cc. or less. Furthermore, there is presumably in the newborn infant the same endogenous release of glycogen for the regulation of blood glucose as exists in the older infant.

In only one of the last 30 infants of diabetic mothers observed by me or my associates did hypoglycemia cause difficulty, and in that infant there was an associated congenital cerebral defect. Loss of weight during the first few days is greater than in other newborn infants, but this is due to overhydration of the infant before birth and, usually, does not necessitate either oral or parenteral fluid replacement. Even with this weight loss, clinical evidence of hypoglycemia is rarely noted. Careful observation of the infant is needed, for signs of respiratory embarrassment may not commence for 6 to 24 hours after delivery. The use of penicillin and possibly streptomycin soon after birth merits consideration as a prophylactic measure against secondary pulmonary infections. Lastly, the mother's dose of insulin should be reduced during the 24 hours preceding delivery, and two or three small doses of regular (quick-acting) insulin should be given instead of the customary single dose of one of the slow-acting insulins. Administration of a glucose infusion to the mother during delivery is also advised in the case of a severely diabetic woman.

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RECURRENCES OF RHEUMATIC FEVER

To the Editor:—*The question in Queries and Minor Notes in* The Journal, *July 11, 1953, concerning the prevention of recurrences of rheumatic fever is answered in a manner that, we believe, has improper emphasis. The reply disregards, in essence, the statements of the American Heart Association Council on Rheumatic Fever and Congenital Heart Disease* (J. A. M. A. **151:***141 [Jan. 10] 1953). While the precise pathogenesis of acute rheumatic fever is still unknown, there is little question that most attacks follow pharyngeal infections with group A hemolytic streptococci. That recurrences can be prevented by the prevention of streptococcic infections has been shown in many studies. It has also been demonstrated that the proper treatment of streptococcic sore throats with penicillin results in a markedly decreased incidence of both recurrent and primary attacks of clinical rheumatic fever. Since about one-half of such streptococcic infections, for various reasons, do not receive the attention of a physician, it would appear necessary for chemoprophylaxis to be given continuously the year around if one were to succeed in preventing recurrences of rheumatic fever. In our present state of knowledge, there appears to be little question that such a program is proper if not mandatory. There may be some question about the ideal method for providing the penicillin, but the best of present information supports the doses recommended in the publication referred to above. Such factors as housing, crowding, altitude, weather, diet, etc., are probably of importance to the pathogenesis of rheumatic fever only as they are related to the epidemiology of streptococcic disease.*

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